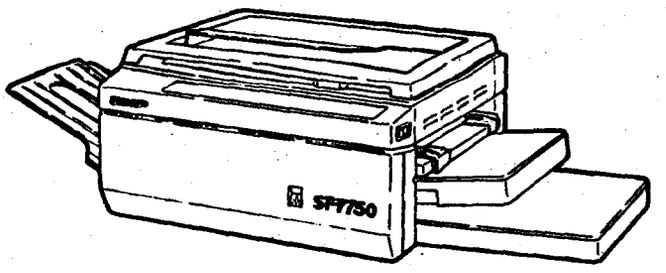
SF-7700
SF-7750

SHARP SERVICE MANUAL

CODE: 00ZSF7750SM/E



SF-7700
MODEL SF-7750

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SHARP CORPORATION

[1] BASIC SPECIFICATIONS

<table>
<tr><th></th><th>SF-7750</th><th>SF-7700</th></tr>
<tr><td>Type:</td><td>Desktop</td><td>←</td></tr>
<tr><td>Copying system:</td><td>Dry-type electrostatic plain paper copier.</td><td>←</td></tr>
<tr><td>Kinds of originals:</td><td>Sheets, book</td><td>←</td></tr>
<tr><td>Original size:</td><td>11" × 17" (A3) maximum.</td><td>←</td></tr>
<tr><td>Copy size:</td><td>11" × 17" (A3) to 8-1/2" × 5-1/2" (A6)</td><td>←</td></tr>
<tr><td>Copy speed:</td><td>
<table>
<tr><th colspan="4">AB series</th><th colspan="4">Inch series</th></tr>
<tr><th></th><th>Normal</th><th>Reduce</th><th>Enlarge</th><th></th><th>Normal</th><th>Reduce</th><th>Enlarge</th></tr>
<tr><td>A4 portrait</td><td>15 sheets/min</td><td>10 sheets/min</td><td>10 sheets/min</td><td>8½"×11" portrait</td><td>15 sheets/min</td><td>10 sheets/min</td><td>10 sheets/min</td></tr>
<tr><td>B5 portrait</td><td>15 sheets/min</td><td>10 sheets/min</td><td>10 sheets/min</td><td>8½"×11" landscape</td><td>9 sheets/min</td><td>8 sheets/min</td><td>9 sheets/min</td></tr>
<tr><td>A4 landscape</td><td>9 sheets/min</td><td>8 sheets/min</td><td>9 sheets/min</td><td>8½"×14"</td><td>9 sheets/min</td><td>8 sheets/min</td><td>9 sheets/min</td></tr>
<tr><td>B5 landscape</td><td>9 sheets/min</td><td>8 sheets/min</td><td>9 sheets/min</td><td>11"×17"</td><td>8 sheets/min</td><td>8 sheets/min</td><td>8 sheets/min</td></tr>
<tr><td>B4</td><td>9 sheets/min</td><td>8 sheets/min</td><td>9 sheets/min</td><td>5½"×8½" portrait</td><td>15 sheets/min</td><td>10 sheets/min</td><td>10 sheets/min</td></tr>
<tr><td>A3</td><td>8 sheets/min</td><td>8 sheets/min</td><td>8 sheets/min</td><td></td><td></td><td></td><td></td></tr>
</table>
</td><td>←
(Normal copy only)</td></tr>
<tr><td>Copy speed:</td><td>15 sheets/min (8-1/2" × 11" (A4) portrait)</td><td>←</td></tr>
<tr><td>First copy:</td><td>10 seconds, maximum</td><td>←</td></tr>
<tr><td>Warm up time:</td><td>60 seconds (at rated voltage and room temperature of 68 degrees Fahrenheit, (20 degrees centigrade), and relative humidity of 65%.</td><td>←</td></tr>
<tr><td>Multicopying:</td><td>1 to 99 copies, 10 key input, countdown type, with repeat, pause, and multicopy in the pause mode.</td><td>←</td></tr>
<tr><td>Paper feed system:</td><td>Double cassette (250-sheet × 2), automatic feed and single manual feed.
Manual feed:
Label, second original, raw paper, two-sided copy.</td><td>←</td></tr>
<tr><td>Magnification ratios:</td><td>
<table>
<tr><td>Normal</td><td>1:1 ± 1%</td></tr>
<tr><td>Reduction</td><td>Reduction ratio ± 1%</td></tr>
<tr><td>Enlargement</td><td>Enlargement ratio ± 1%</td></tr>
</table>
Programmable steps: 64% to 154%, 91 increments of 1% each
(Fixed ratio)
<table>
<tr><th>AB series</th><th>Inch series</th></tr>
<tr><td>141%, 122%, 115%
100%, 86%, 81%, 70%</td><td>141%, 129%, 121%
100%, 95%, 77%, 64%</td></tr>
</table>
</td><td>←
—
—
—
—</td></tr>
<tr><td>Exposure System:</td><td>Slit exposure with stationary platen and moving light source, variable light source illumination.</td><td>←</td></tr>
<tr><td>Developing system:</td><td>Two component magnetic brush development (positively charged toner and negativsly charged carrier).</td><td>←</td></tr>
<tr><td>Toner supply:</td><td>Automatic toner control system, with magnetic sensor.</td><td>←</td></tr>
<tr><td>Photoconductor:</td><td>OPC Drum.</td><td>←</td></tr>
<tr><td>Paper separation system:</td><td>Separation with the remover tape and separation roller.</td><td>←</td></tr>
<tr><td>Cleaning system:</td><td>Blade cleaning of the drum.</td><td>←</td></tr>
<tr><td>Original alignment:</td><td>Front frame, left side aligned.</td><td>←</td></tr>
<tr><td>Charge system:</td><td>Negative DC corona.</td><td>←</td></tr>
<tr><td>Transfer system:</td><td>Negative DC corona</td><td>←</td></tr>
<tr><td>Paper Transport system:</td><td>Feed roller.</td><td>←</td></tr>
<tr><td>Discharge system:</td><td>Optical discharge by means of a discharge lamp.</td><td>←</td></tr>
<tr><td>Light source:</td><td>Halogen lamp.</td><td>←</td></tr>
<tr><td>Power requirements:</td><td>100/110VAC, 50Hz/60Hz
120VAC, 60Hz
200VAC, 60Hz
220VAC, 50/60Hz
240VAC, 50Hz</td><td>←
←
←
←
←</td></tr>
<tr><td>Power consumption:</td><td>Max. 1130W, 1180W (including SDF and Sorter), Average during stand by/ready. 130W (20~25°C)</td><td>←</td></tr>
<tr><td>Fusing system:</td><td>Heat roller type
Upper heater roller: Teflon coated
Lower heater roller: Silicon</td><td>←
←
←</td></tr>
<tr><td>Physical dimensions:</td><td>600mm (23.6") wide × 550mm (21.7") deep × 325mm (12.8") high</td><td>←</td></tr>
<tr><td>Machine installation area:</td><td>1500mm (60") wide × 1200mm (48") deep</td><td>←</td></tr>
<tr><td>Weight:</td><td>approximately 39kg. (86 lbs)</td><td>approximately 38kg (84 lbs)</td></tr>
</table>

A arrow mark "←" in the SF-7700 column shows that the description is the same as that of the SF-7750 and a mark "–" indicates that is not incorporated in the SF-7700.

Accessories

:	SF7750	SF7700
Cassette • SEC, SECL • SEEG, SUK • SCA and other AB series region • Other inch series region	8½"×14", 8½"×11", 8½"×11R" A3, A4, A4R A4, A4R, universal 8½"×11", 8½"×1R", universal	8½"×14", 8½"×11" A4, universal A4, universal 8½"×11", universal
Paper receive tray	× 1	× 1
Instruction Book	× 1	× 1
Corona wire cleaner	× 1	× 1
Dust cover (for specific region only)	× 1	× 1

Options

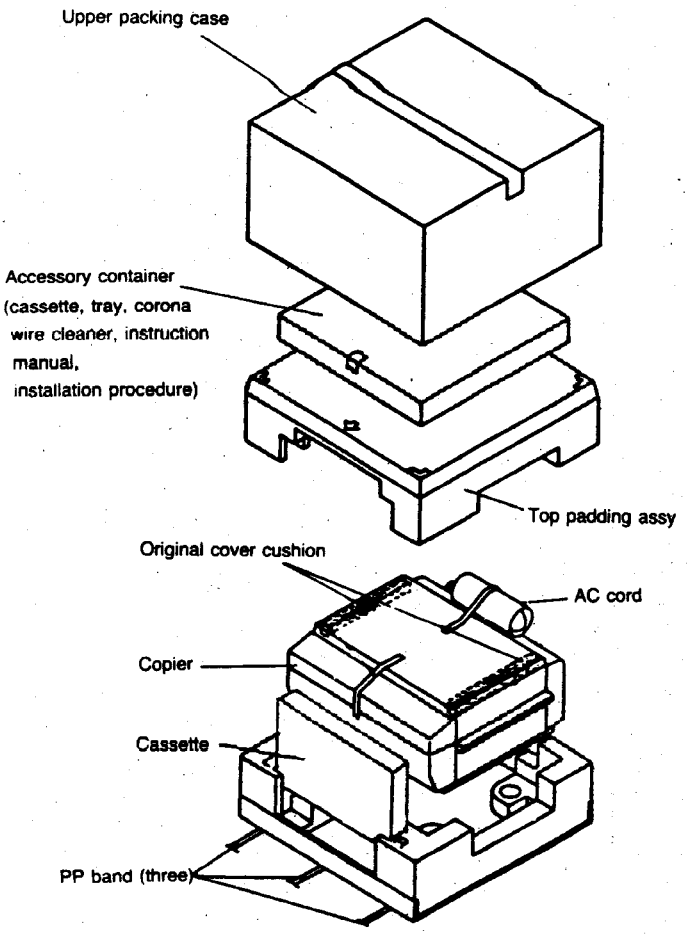
SF7750	SF7700
SF-466 SADF (document feeder)	←
SF-413 (10-bin sorter)	←
SF-71A/71B (personal counter)	←
SF-770D (machine desk)	←
Cassettes SF770A3E (A3), SF770B4E (B4) SF770A4E (A4), SF770AR (A4R) SF770EC (17"×11"), SF770CC (14"×8½") SF770BC (8½"×11"), SF770LR (8½"×11" R) SF770AC (8½"×5½") SF770UCE (universal)	Cassettes SF770A3E (A3), SF770B4E (B4) SF770A4E (A4), SF770EC (17"×11") SF770CC (14"×8½"), SF770BC (8½"×11") SF770AC (8½"×5½"), SF770UCE (universal)

[2] UNPACKING AND INSTALLATION

1. Unpacking

(1) Open the carton in the following sequence.

① Cut the PP bands.
② Remove the upper packing case.
③ Remove the top padding assy.
④ Remove the cassette pack.
⑤ Remove the copier body from the bottom case.

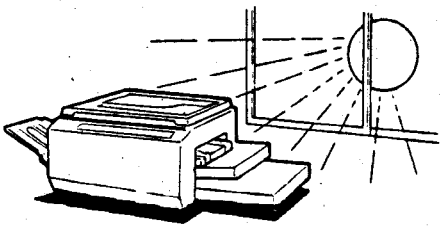


2. Installation

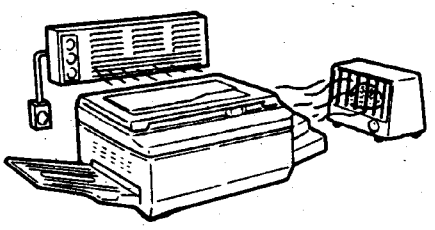
Installation requirements:
Please note the following requirements when installing the copier.

(1) Machine Environment

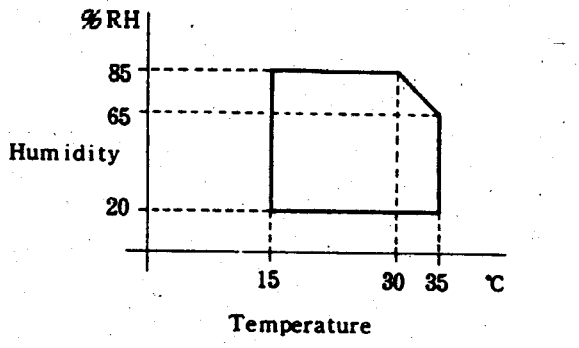
① Avoid installation in direct sunlight or bright locations near a window.
Direct sunlight may cause the plastic components and the original cover to deform. Frosted glass may also produce the same effect.



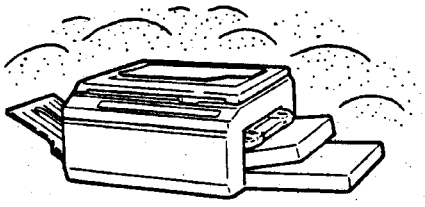
② Avoid installation in a hot, damp place or where rapid changes in humidity occur (for example; near an air conditioner).
This may cause paper to dampen or frost to occur inside the copier, and may lead to a misfeed and a deterioration in copy quality.



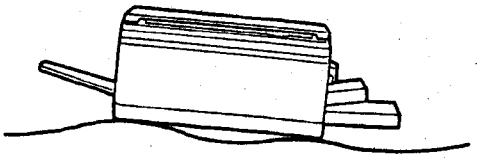
The recommended environmental conditions are:
20 to 25 degrees C (68 to 77 degrees F.), 65±5%RH. The nominal environment conditions are:
15 to 30 degrees C. (59 to 86 degrees F.), 20 to 85%RH.
If the copier is to be installed in an area of higher temperature, the humidity must be lower. Example; If the temperature is 35 degrees C. (95 degrees F), the humidity should be 65%.



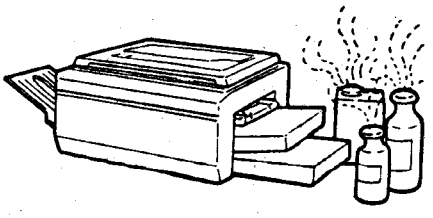
③ Avoid installation in a place where dust or vibration is encountered.
Dust deposit inside of the copier may lead to a deterioration of copy quality or machine trouble.



④ Do not install the copier on an unstable or uneven surface. The copier must be placed on a level surface to permit proper operation.



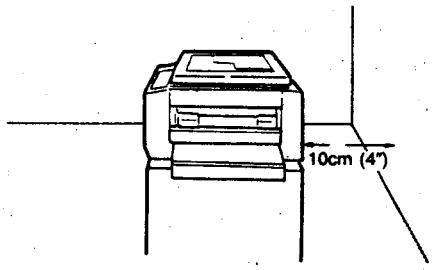
⑤ Avoid installation in a place where the ventilation or air circulation is poor.
⑥ Never install the copier near inflammable materials or in the presence of ammonia fumes.
Installation near a diazo copy machine may lead to a deterioration of copy quality or a machine malfunction.



⑦ Install the copier near the wall outlet.

(2) Space around the copier

The copier requires at least 10cm (4") of clearance between the rear side and the wall. This space is required for proper cooling fan ventilation. Adequate working space around the machine should also be allowed for ease of operation and service.



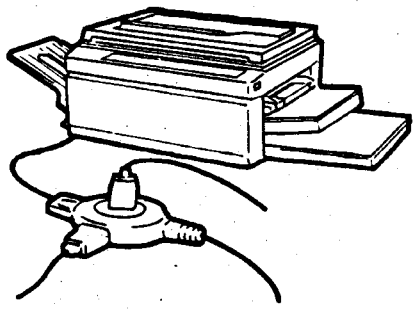
(3) Copier table

Install the machine on a level surface. Place a water level in the center of the original glass and check level front to rear and side to side.

NOTE: The toner density and copy quality may be affected unless the machine is installed on a level surface.

(4) Power source

① The power supply line should have a capacity of more than 15A, capable of supplying more than 90% of the rated voltage at full load.
② Do not use an extension cord or operate any other equipment from the same wall outlet.

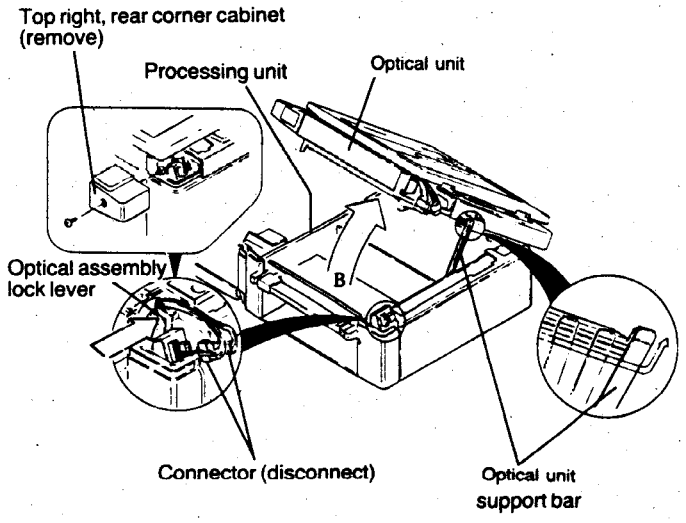


(5) Ground connection

① Use a properly grounded (three prong) wall outlet that meets all national and local electrical code specifications.

3. Releasing locks

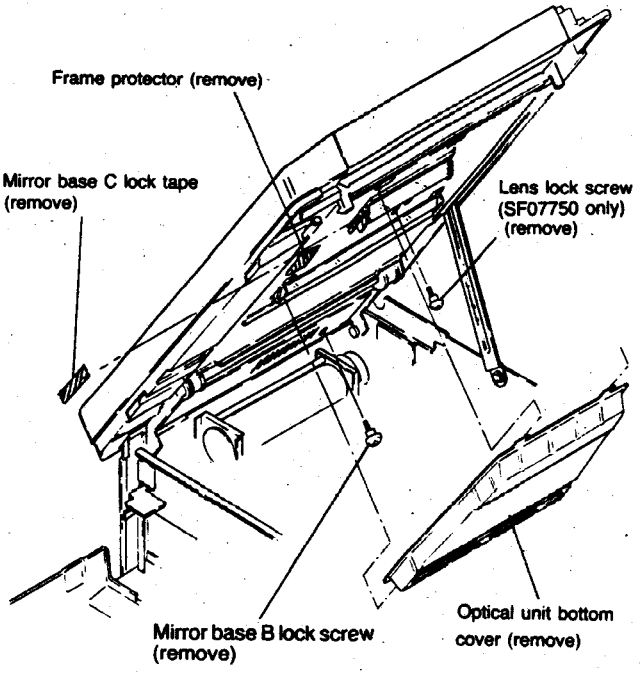
① Open the front panel.
② Remove the top right, rear corner cabinet.



③ Disconnect the two connectors for the optical unit and processing unit.
④ Release the optical unit lock lever (move it in the direction of arrow A), and lift the optical unit open (arrow B).

CAUTION: When opening and closing the optical unit use caution to ensure that you do not damage the unit or hurt your hands. Make sure that you grasp it firmly and move it slowly. If you let it drop damage can occur to the unit or it may close on your hands.

⑤ Lock the optical unit open with the support bar.
⑥ Remove the bottom cover from the optical unit.


Frame protector (remove)
Mirror base C lock tape (remove)
Lens lock screw (SF07750 only) (remove)
Mirror base B lock screw (remove)
Optical unit bottom cover (remove)

⑦ Remove the mirror base B lock screw. (LX-BZ0383FCZZ)
⑧ Remove the lens lock screw (SF7750 only). (LX-BZ0378FCZZ)
⑨ Remove the mirror base C lock tape.
⑩ Remove the frame protector.
⑪ Replace the optical unit bottom cover.

NOTE: The copier must be set in the following conditions to relocate it.

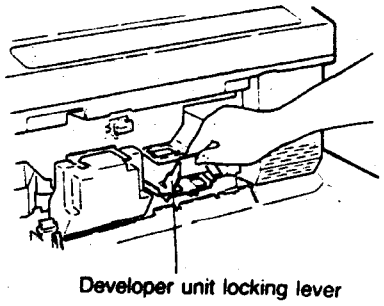
- Set the copier in the reduce mode (1:0.64).
  Turn power off.
  Secure the lens and the mirror base C with the lens locking screw and mirror base C locking tape.
  Note that the copier was shipped out of the factory with the lens and the mirror base C locked at the 1:0.64 reduce position. The SF7700, however, does not need the lens locked.
- Secure the mirror base B.
- Install the fram protector.

4. Installing supplies

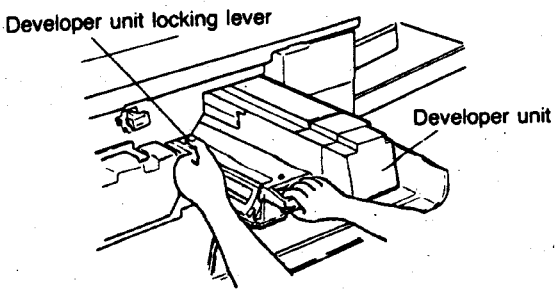
(OPC drum, drum cleaning blade, developer, toner and Heat roller cleaning roller.)

(1) Developer unit removal

① Open the front panel.
② Pull the developer unit locking lever forward.



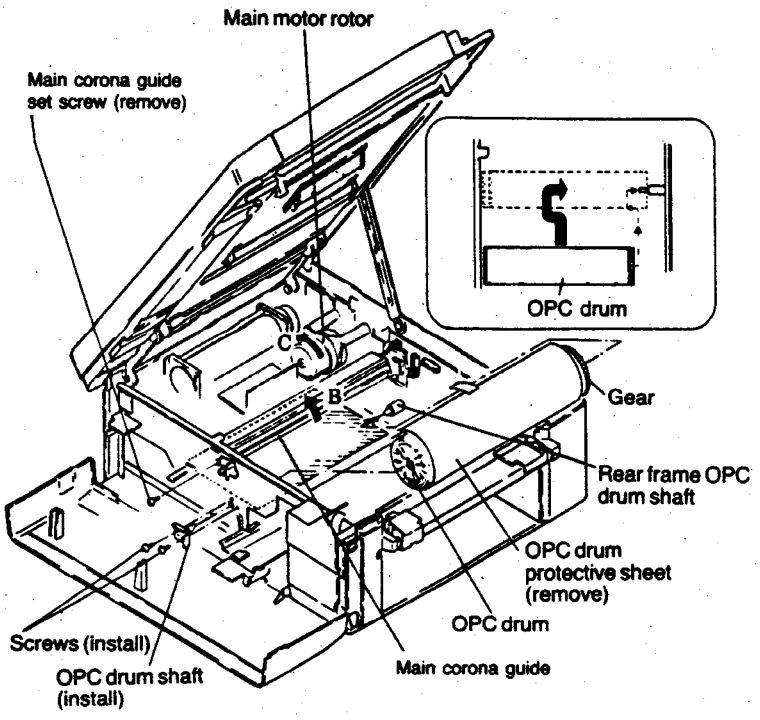
③ Pull the developer unit out.

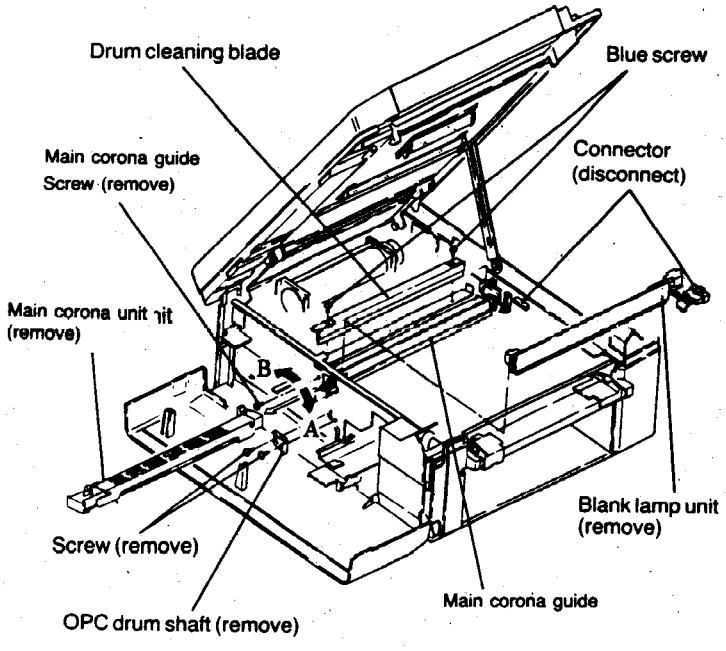


④ The developer unit will catch and stop when it is pulled far enough out for toner filling. To remove the unit, push the developer unit release lever and support the bottom of the unit with are hand while lifting and continuing to pull the developer unit out.

(2) OPC drum, cleaning blade installation

① Remove the front frame OPC drum shaft. (The OPC drum and drum cleaning blade are replaced every 40,000 copies.)





② Remove the main corona unit.
③ Remove the blank lamp unit.
④ Remove the main corona guide set screw, and turn the main corona guide in the direction of the arrow A.
⑤ Install the OPC drum cleaner blade onto the drum cleaning blade holder using the two blue screws. (The blue screws are located on the main cleaning blade holder.)
⑥ Return the main corona guide to the original position (in the direction of arrow B), and secure it in place.

⑦ Remove the OPC drum protective sheet and fit the OPC drum (gear side toward the rear frame of the machine) onto the drum shaft. Be CAREFUL not to touch the drum surface.

NOTE: The white powder on the blade and drum surface reduces the friction between the drum and the blade. Install the parts as is, WITHOUT REMOVING THE POWDER.
Be careful not to damage the surface of the blade or drum.

In case more powder is required, use starting powder (UKOG-0088CSZZ) and apply it over the OPC drum surface. Lack of the powder increases friction between the drum and the cleaning blade which causes the blade to flip back and scratches the drum surface.
Stains on the drum surface should be cleaned away with a dry cloth. If it were to remains on the drum surface, wipe it away with a cloth slightly dampened with water, then wipe it dry again. Never try to use alcohol or thinner.
It may harm the OPC layer.

When replacing the drum or drum cleaning blade, cover the original transport guide, transfer corona unit, separation unit, and the PS roller with a sheet of paper in order to avoid toner scattered from the cleaner unit to fall onto the transport guide, transfer corona unit, PS roller, and separation unit.

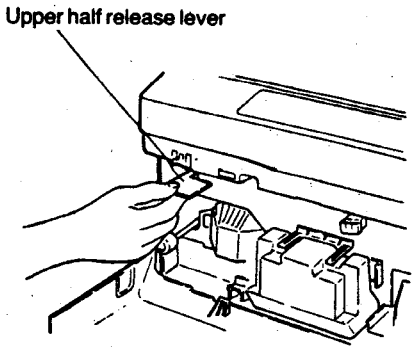
⑧ Install the front frame drum shaft.
⑨ Turn the main motor two or three turns in the direction of arrow C by hand to work the drum and blade together.

NOTE: Do not turn the main motor rotor in the direction opposite to the arrow C. Doing so will cause the drum cleaning blade to turn in reverse, possibly resulting in damage to the drum.

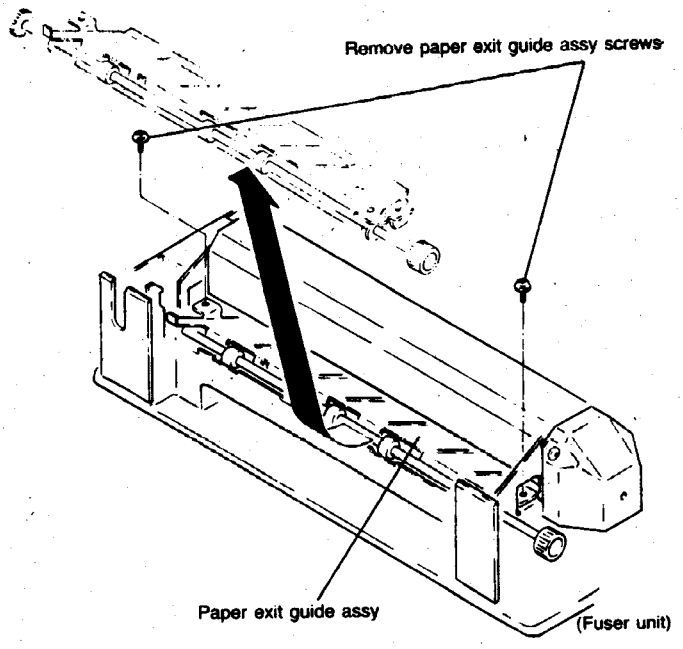
⑩ Install the blank lamp unit.
⑪ Release the optical unit support bar and gently close the optical unit.
⑫ Connect the connectors (2) for the optical unit and processor.
⑬ Install the top right, rear corner cabinet.

(3) Installing the heat roller cleaning roller and the thermister cleaning roller.

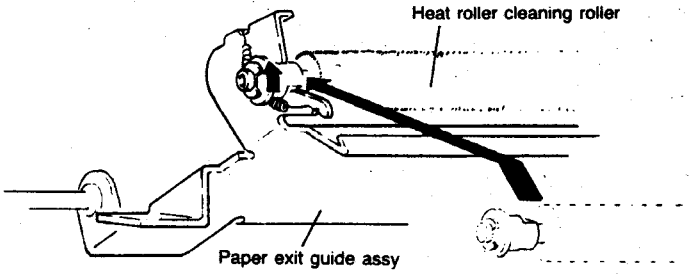
① Open the front panel.
② Lift the upper half release lever and open the upper half of the copy machine.



③ Remove the paper exit guide assy (fuser unit).

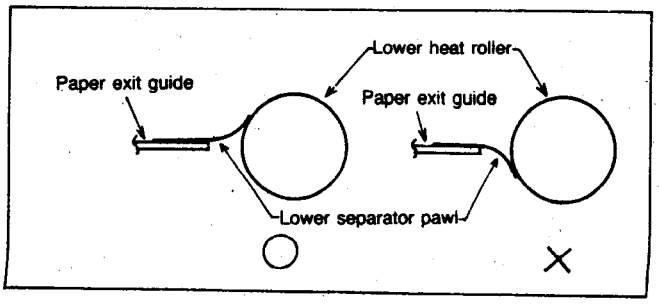


④ Install the lower heat roller cleaning roller on the paper exit guide assy.

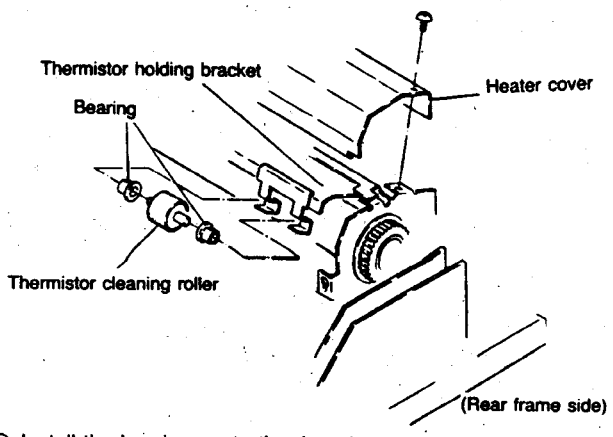


⑤ Replace the paper exit guide in the copy machine.

NOTE: Make sure the lower separator pawls are on top of the Lower fuser Roll.



⑥ Remove the heater cover.

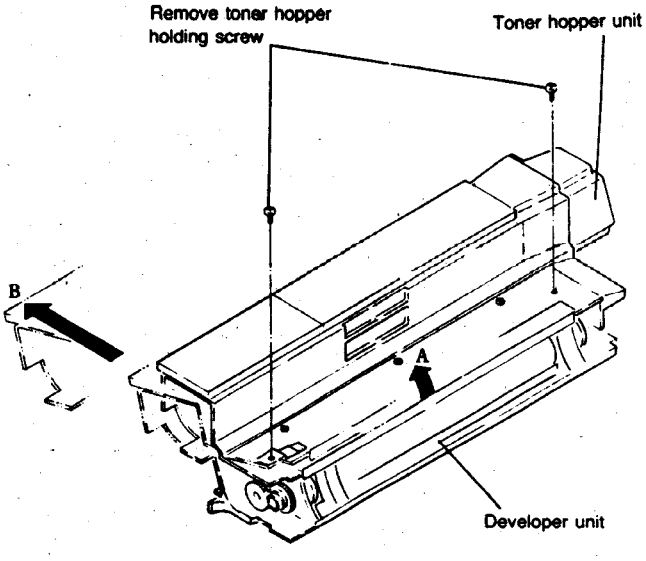


⑦ Install the bearings onto the thermister cleaning roller shaft.
⑧ Install the cleaning roller as show in the diagram.
⑨ Replace the heater cover.
⑩ Close the copy machine.

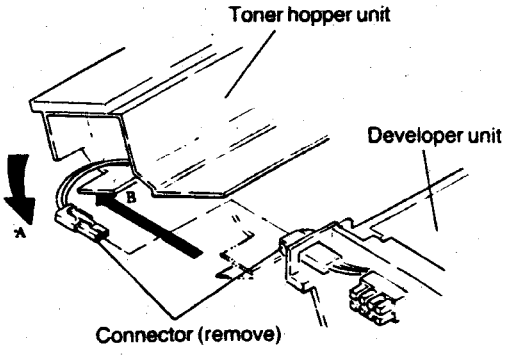
(4) Loading the developer and toner.

(The developer should be replaced every 40,000 copies.) (Black developer)

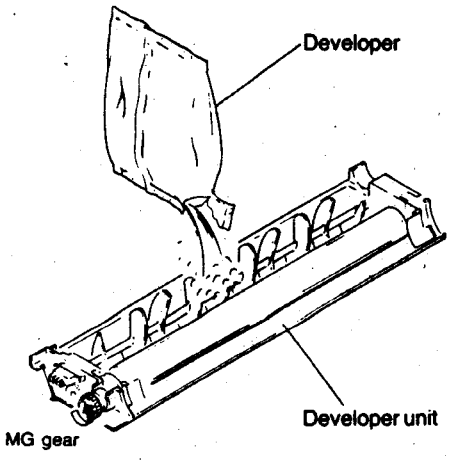
① Remove the two screws in the toner hopper unit from the developer unit.



② Unplug the connector for the toner hoper unit from the developer unit.



③ Rotate the toner hopper unit in the direction of arrow A, and move it towards arrow B.
④ Pour all of the developer into the developer unit while turning the MG gear counterclockwise (in the direction of the arrow).

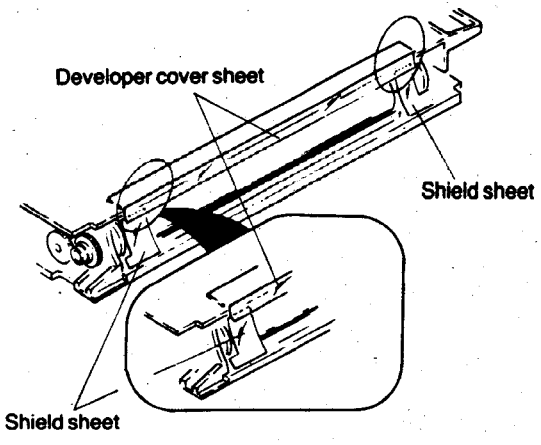


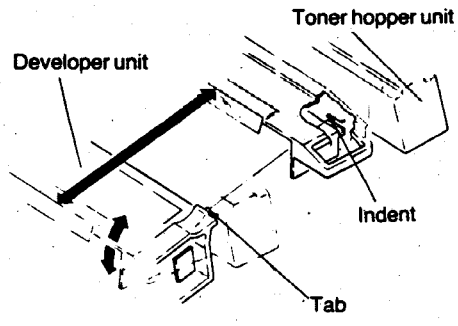
NOTE: The black toner is contained in a bag, color developer is contained in a bottle.

⑤ Install the toner hopper unit onto the developer unit.

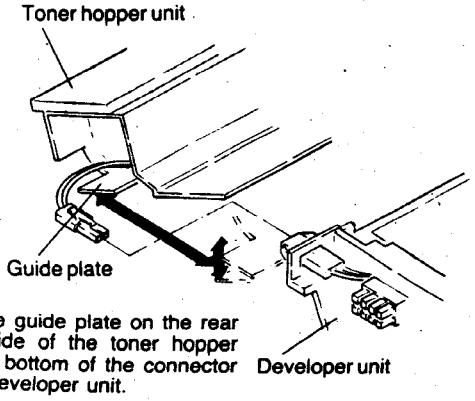
NOTE: The developer cover sheet on the toner hopper unit must be over the shield sheet on both ends of the MG roller.

Improper installation of the toner hopper, may cause a copy quality problem such as background or stains due to scattering toner.





Align the tab on the front frame side of the developer unit with the indent on the toner hopper unit.



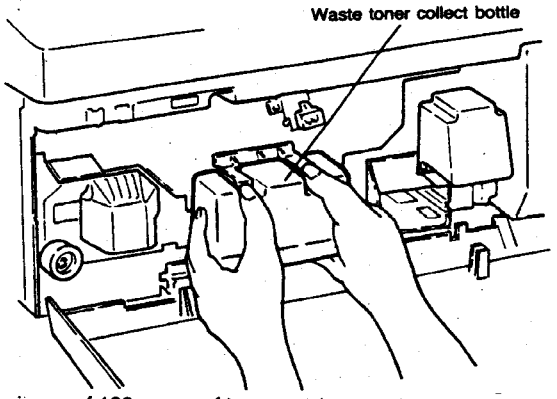
Align the guide plate on the rear frame side of the toner hopper with the bottom of the connector on the developer unit.

⑥ Screw the toner hopper unit to the developer unit.
⑦ Plug the toner hopper unit connector into the developer unit connector.
⑧ Install the developer unit in the copy machine.

(5) Installing the waste toner collect bottle

Because the waste toner full detect function is not incorporated in this model, the used waste toner bottle must be replaced with a new one or the waste toner must be emptied from the bottle. If this caution is ignored, it causes the toner feed spring in the cleaner section to lock and may destroy the gear and screw.

① Install the waste toner collect bottle in the copier.

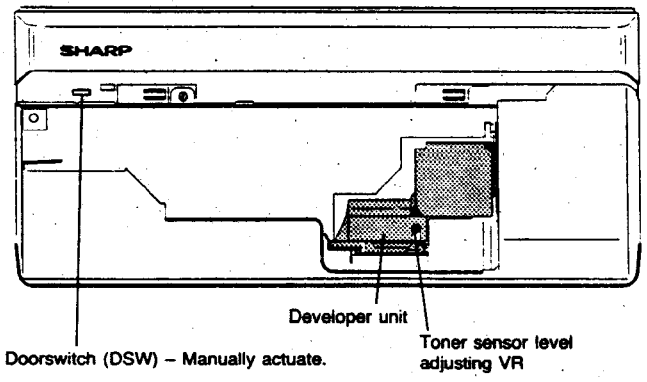


A maximum of 100 grams of toner can be contained in the waste toner collect bottle. After 7,500 copies of A4 paper with 6% toned area will produce 100 grams of waste toner.

(6) Adjusting the toner sensor level

① Open the front panel and turn the power switch on.
② Execute test command 25.
(Test command 25 execution procedure)
C → P → 0 → P → [2] → [5] → PSW

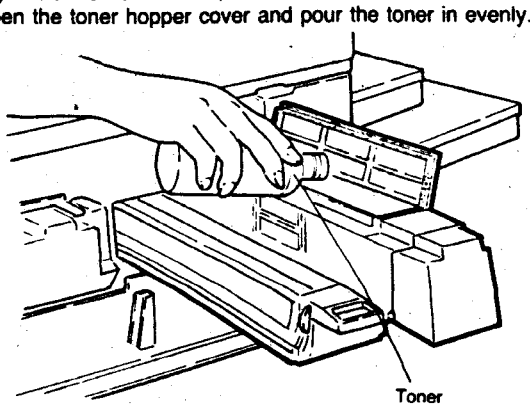
③ Manually actuate the doorswitch (DSW) to stir the developer for a period of three minutes.
④ After stirring the developer for three minutes, push the PRINT switch to perform test command 25 once more. Turn the toner sensor level adjusting VR clockwise until the toner empty indicator (TEL) lights.



⑤ Slowly turn the toner sensor level adjustment VR counterclockwise until the toner empty indicator is just off.

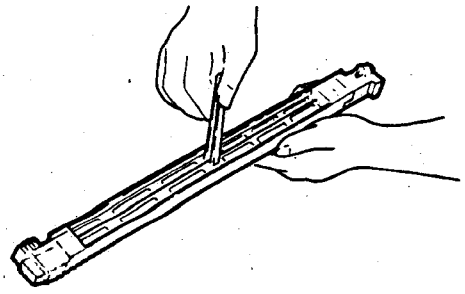
(7) Add toner

Open the toner hopper cover and pour the toner in evenly.

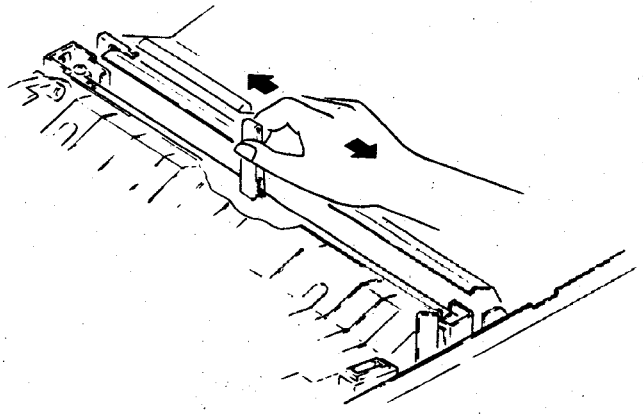


5. Cleaning the corona wire

① Clean the main corona unit with the provided cleaner, and then reinstall the main corona unit in the copy machine.



② Lift the upper half release lever and open the copy machine.
③ With the transfer corona unit still installed, clean the transfer corona wire with the provided cleaner.



6. Local mode programming

Some control programs may be revised to meet local requirements. Use the test commands 79, and 78 to reprogram.

① Test command 79. (Used to assign the model and local version.)
Perform the following command entry to setup the desired mode:
C → P → O → P → [7] → [9] → [PSW] (with this, the previously programmed mode number is displayed with the ready lamp turned ON) → □ → □ (enter the desired two digit mode number) → [PSW] (the new mode number is displayed and the ready lamp goes out) → C (the test command is now cleared).

Model		Parameter (Local mode number)	Local standards	Description	Remark
SF-7750	AB series	10	100V series(Japan)	• Choice of Japan or export AB series • Supply voltage specification is set	Although the sizes, B5 and B5R, are displayed in Japan, they are not used in other countries.
		11	100V series (export)		
		15	200V series		
	Inch series	12	100V series(US)	• Choice of paper size preference • Supply voltage specification is set	For the US version, the paper size 8-1/2" × 11" is automatically selected, 1 minute after the last job was run or pause is selected, if no further operation is performed. For versions other than US, The paper size used for the last job remains displayed until manually changed.
		13	100V series (other than US)		
		17	200V series		

Model		Parameter (Local mode number)	Local standards	Description	Remark
SF-7700	AB series	00	100V series(Japan)	• Choice of Japan or export AB series • Supply voltage specification is set	Although the sizes, B5 and B5R, are displayed in Japan, they are not used in other countries.
		01	100V series		
		05	200V series		
	Inch series	02	100V series(US)	• Choice of paper size preference • Supply voltage specification is set	For the US version, the paper size 8-1/2" × 11" is automatically selected, 1 minute after the last job was run or pause is selected, if no further operation is performed. For versions other than US, The paper size used for the last job remains displayed until manually changed.
		03	100V series (other than US)		
		07	200V series		

② Test command 78. (Used to input the data (use of options double counting of counter, or single counting of counter)).
Perform the following command entry to setup the desired mode:
C → P → O → P → [7] → [8] → [PSW] (with this, the previously programmed mode number is displayed with the ready lamp turn ON) → □ → □ (enter the desired two digit mode number) → [PSW] (the new mode number is displayed and the ready lamp goes out) → C (the test command is now cleared).

Data setting	Document feeder installation	Sorter installation	*Counter counting method	
			Total counter	Maintenance counter
00	No	No	Double count	Double count
01	Yes			
02	No	Yes		
03	Yes			
10	No	No	Single count	
11	Yes			
12	No	Yes		
13	Yes			
20	No	No	Double count	Single count
21	Yes			
22	No	Yes		
23	Yes			
30	No	No	Single count	
31	Yes			
32	No	Yes		
33	Yes			

*When the double count mode is selected, a single 11"×17" (or A3) copy will be counted as two copies by the counter.

NOTE: The system will not function properly if the correct setting are not made.

7. Copy check

Copy checks must be conducted at each maintenance.

(1) Image deviation towards copying direction

It must be within 2mm.

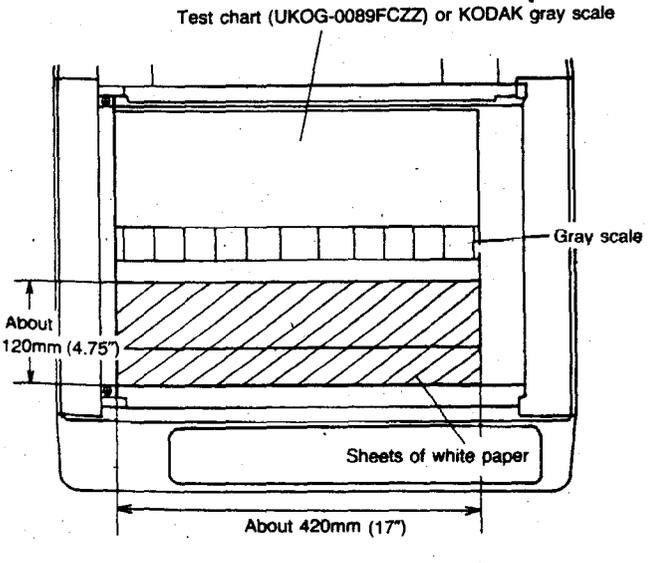
(2) Void area and image loss

Take copies in the normal magnification ratio to ensure that void area and image loss are within the given limits below.

- Lead edge void area: 0~3.0mm
- Trail edge void area: 8.0mm, max.
- Lead edge image loss: 0~3.0mm
- Trail edge image loss: 8.0mm, max.

(3) Copy density

① Place four sheets of blank white paper, 120mm × 420mm, (4.75" × 17") on top of each other and place the test chart (UKOG-0089CSZZ) or KODAK gray scale beside or on it, so that the gray scale portion of the test chart can be copied.



② Set the copy density correction level to the middle.
When the doorswitch (DSW) is turned off by opening the front panel, the status "CH" is displayed in the copy number indicator and four out of five copy density indicators will activate with the remaining one blinking. This blinking indicator indicates the copy density correction level currently employed, and it is possible to select another level using the copy density level control key.
Each level of the copy density correction level is represented by L2, L1, N, D1, D2. In order to select another copy density correction level, it is necessary to set the key in the center (N) level – N blinking and the rest are activated.

③ Set the copy density level to 5.0.
Make a copy and ensure that the gray scale strip 0.2 (2) has a light background and 0.3 (3) is distinctly copied.

④ Set the copy density level to 1.0.
Make a copy and ensure that the gray scale strip 0.0 (A) has a light background and 0.1 (1) is distinctly copied.
Note: that the figure shown within parenthesis is for KODAK gray scale.

(4) Resolution

Make one copy at magnification ratios of 1.54, 1.0 and 0.64. Make sure that their resolutions are within the given limits below.

Resolution / Magnification ratio	At center of copy	At corner of copy
Normal mode (100%)	5.0 lines/mm	4.5 lines/mm
Enlarge mode (101~154%)	5.0 lines/mm	4.5 lines/mm
Reduce mode (99~90%)	4.5 lines/mm	3.6 lines/mm
Reduce mode (89~75%)	3.6 lines/mm	3.2 lines/mm
Reduce mode (74~64%)	3.6 lines/mm	3.2 lines/mm

When more than a half of a line of the test chart is distinctly copied it is assumed to be with in resolution limits.

(5) Skew

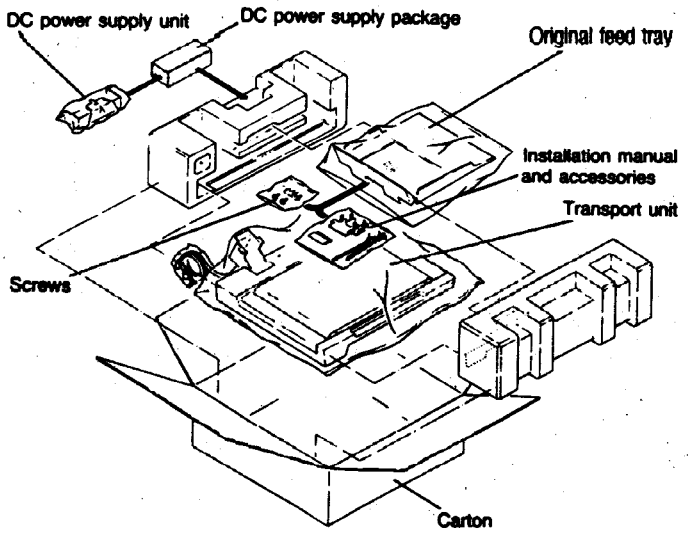
Ensure that skew is within the limits below.
Size above B4 (14" × 8-1/2"): 2mm, max.
Size above A4 (11" × 8-1/2"): 1.5mm, max.

[3] INSTALLATION OF OPTIONAL EQUIPMENT

1. SADF (SF-466)

1) Unpacking

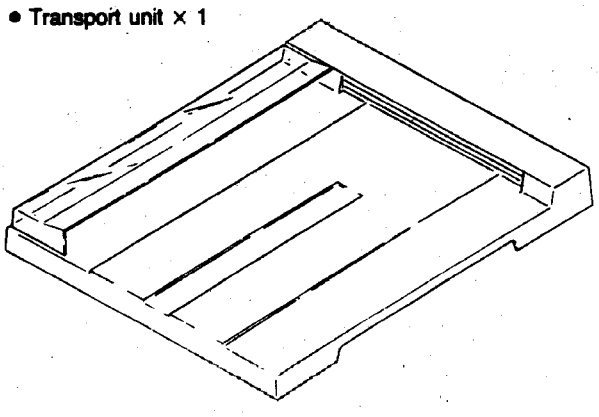
Open the package in reference to the illustration below.



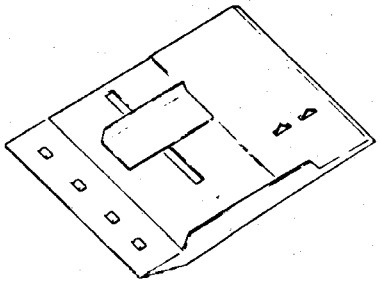
2) Installation

A. List of parts

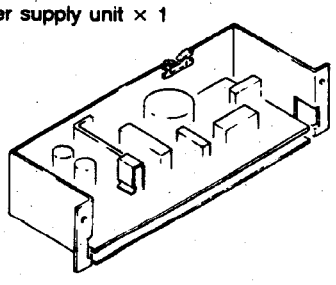
- Transport unit × 1



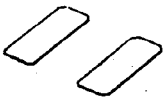
- Original feed tray × 1



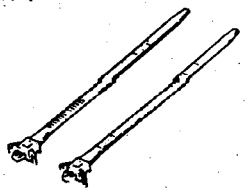
- DC power supply unit × 1



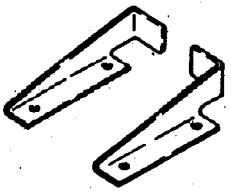
- Mylar sheet × 2



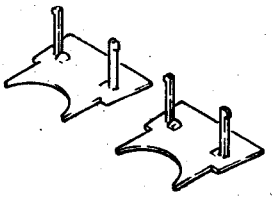
- Harness tie × 1



- Tray angle, F and R × 1 each



- Hinge cover × 2



- Document glass registration guide × 1

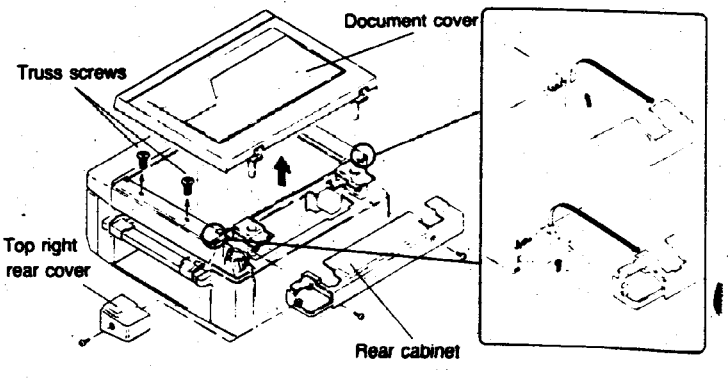
- Screws

M4×8	truss	×2 (Transport unit)
M4×8	with spring and standard washers	×4 (Transport unit)
M4×8	with spring and standard washers	×2 (DC power supply unit)
M4×8	truss	×2 (Original feed tray)
M4×6	with spring washers (brass)	×1 (Ground)
M4×6	with nylon washers	×4 (Tray angle)

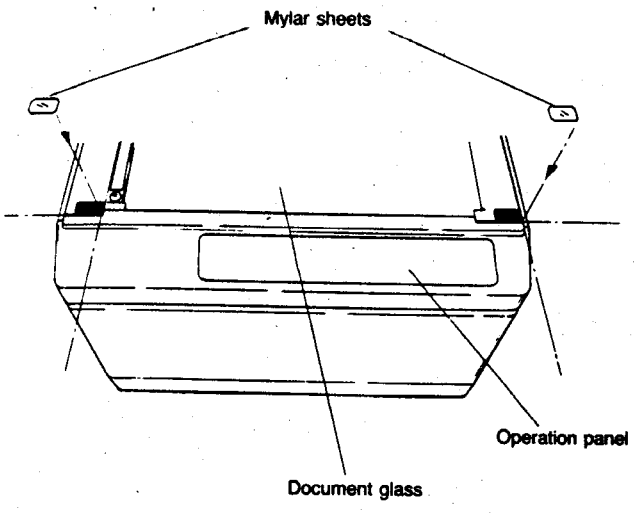
B. Installation procedure

Unplug the AC power supply cord to the copy machine before proceeding with SF-466 installation.

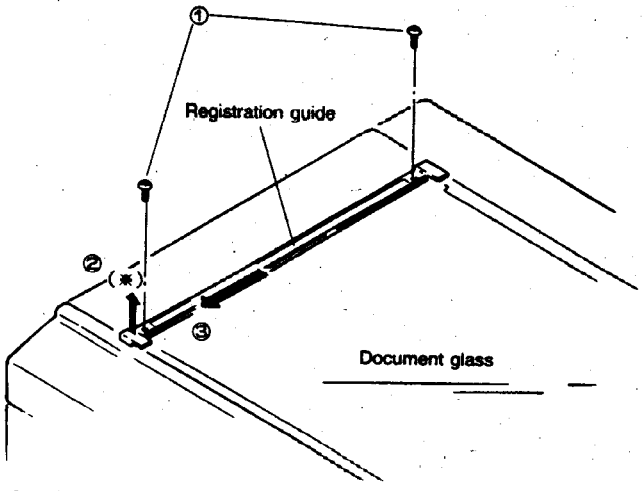
① Remove the document cover from the copy machine.
② Remove top right rear cover and rear cabinet.
③ Remove the two truss screws (white).



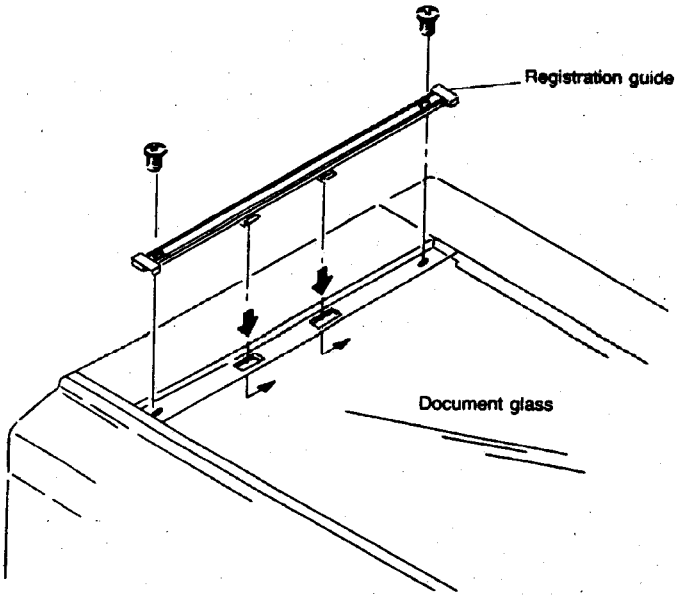
④ Apply the mylar sheets (included) on the copy machine as shown below.



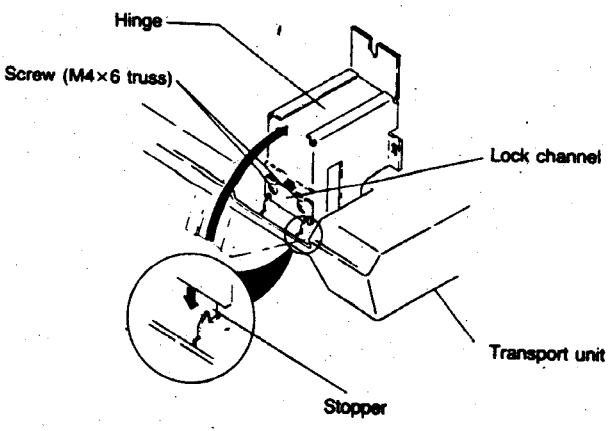
⑤ Remove the two screws for the document glass registeration guide from the copy machine.
⑥ Remove the registration guide by lifting the front end as shown by the arrow (*) and then pulling it to the front.



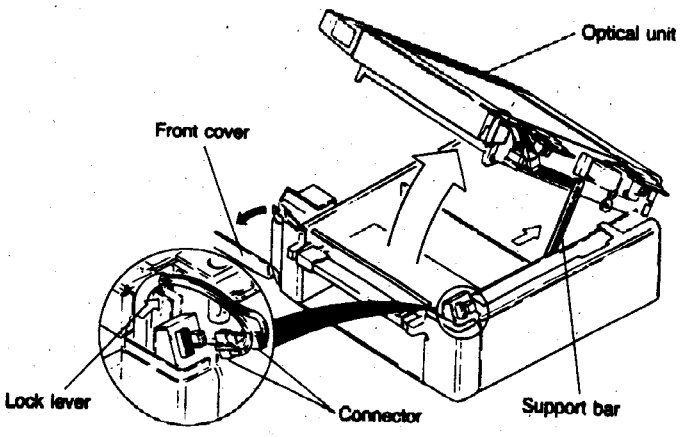
⑦ Install the registration guide with cusion onto the copy machine.



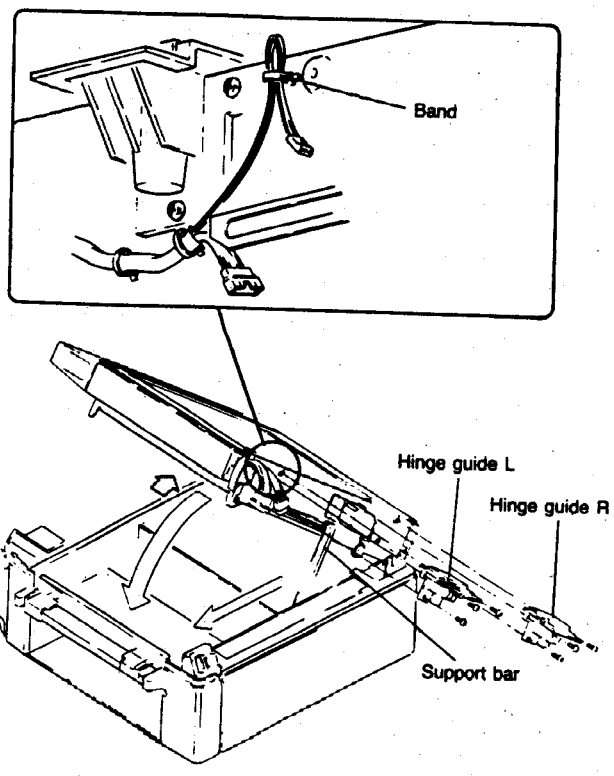
⑧ Loosen the screws (M4×6 truss) for the hinge stoppers on the transport unit 1–2 turns.
⑨ Open the transport unit hinges by hand and set the stoppers in the lock channels.
⑩ Tighten the screws with the hinges locked.

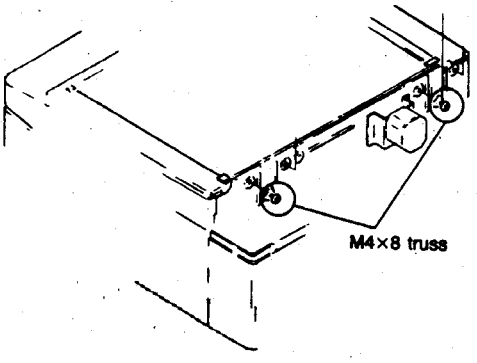


⑪ Open the front cover of the copy machine.
⑫ Disconnect the two connectors for the optical unit and process unit.
⑬ Release the lock lever for the optical unit, and open the optical unit to the locked position.
NOTE: Make sure the optical unit locks in the open position.

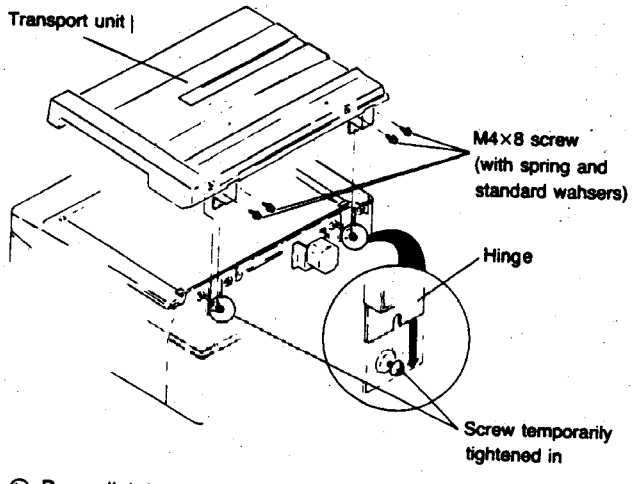


⑭ Cut the band holding the power supply harness.
⑮ Remove the original cover hinge guides R and L from the back of the copy machine.
⑯ Install one M4×8 screw in each lower screw position of hinge screw pattern as shown.
⑰ Back out each screw about 3 turns for easy hinge installation.
⑱ Lift the optical unit slightly, unlock it and carefully close the optical unit.

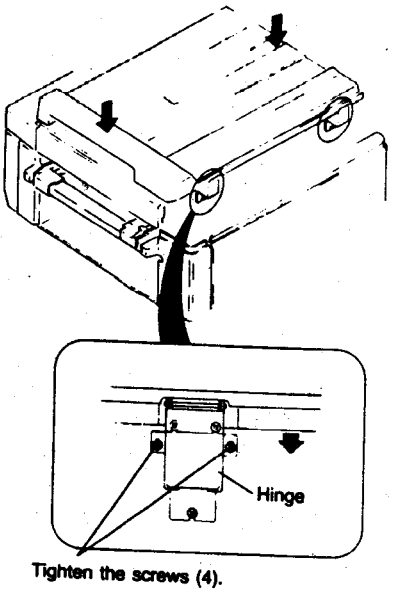


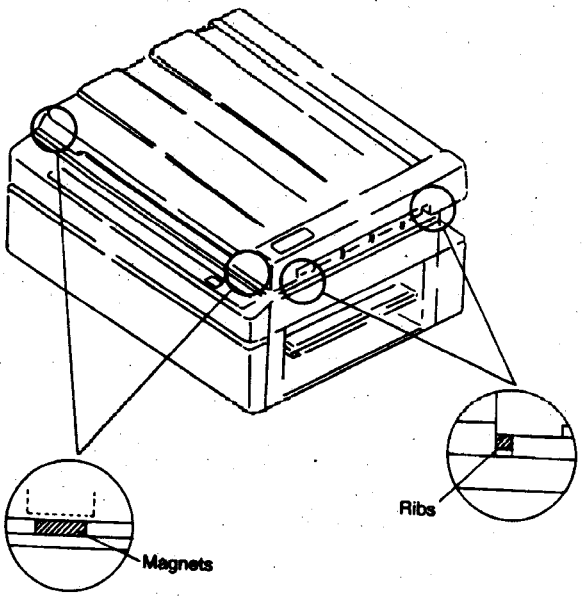


⑲ Place the transport section onto the copy machine while guiding the hinges onto the M4×8 screws of ⑱.
⑳ Install the remaining four M4×8 hinge holding screws. Do not tighten them at this time.

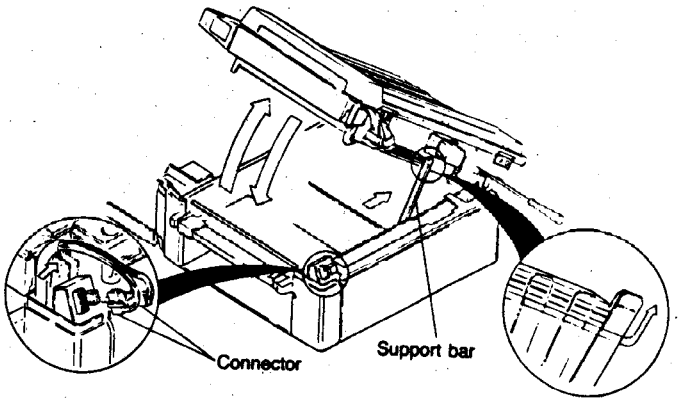


㉑ Press lightly on the transport unit at the points of the arrow marks. This will settle the magnets (front) and the ribs (feed side) onto the copy machine.
㉒ Tighten the two (2) hinge screws on each hinge as shown.

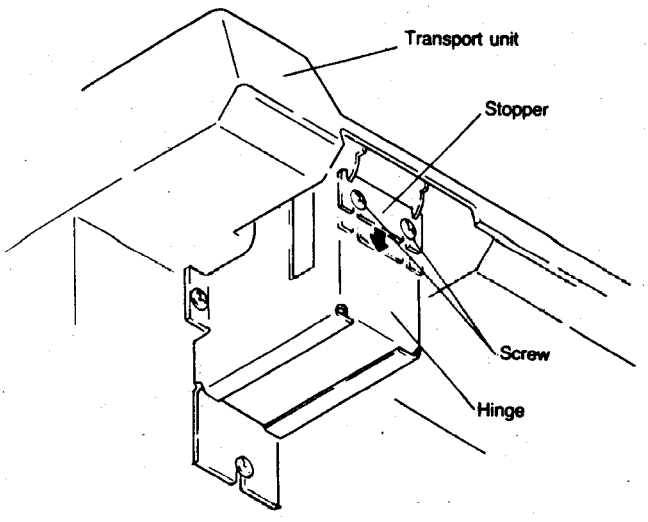




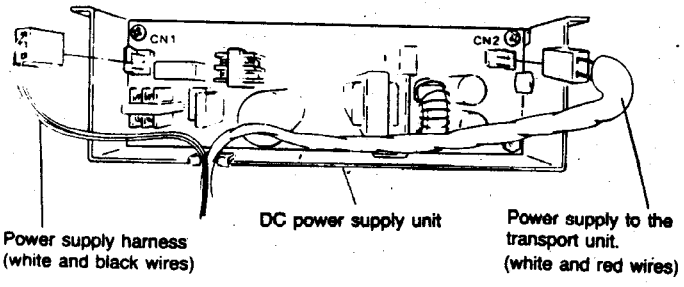
㉓ Open the optical unit on the copy machine, and lock it with the support bar.
㉔ Tighten the two (2) lower hinge screws installed in ⑯.
㉕ Carefully close the optical unit, and reconnect the two connectors.



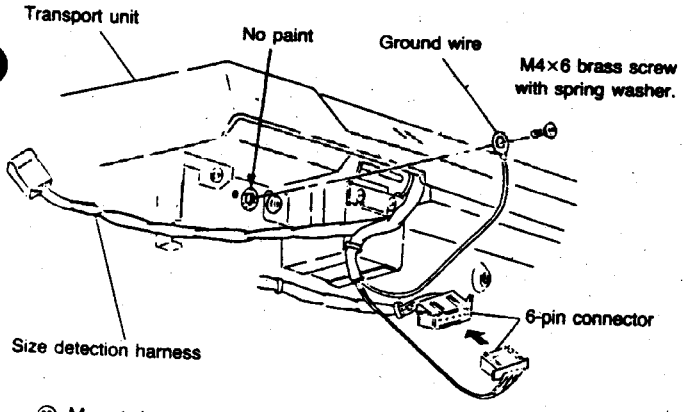
㉖ Loosen the stopper screws in the transport section hinges and lower the stopper to release the hinge locks.
㉗ Retighten the screws.



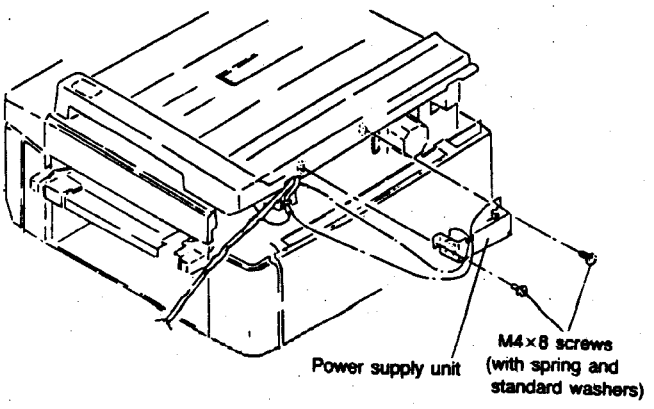
㉘ Connect the 2-pin connector of the harness (white and black wires) of the transport unit to the CN2 connector of the power supply unit.
㉙ Connect the 3-pin connector of the copy machine power supply harness (white and black wires) to the CN1 connector. Only two pins are used on the 3-pin connector.



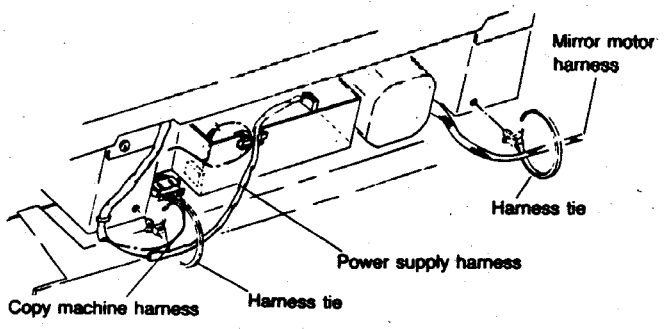
㉚ Connect the 6-pin connector of the transport harness to the 6-pin connector on the back of the copy machine.
㉛ Secure the green ground wire to the copy machine with the provided screw (M4×6 brass screw with spring washer).



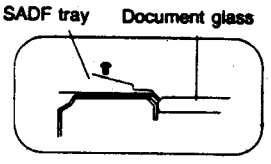
㉜ Mount the power supply unit with the M4×8 screws with spring and standard washers (supplied).

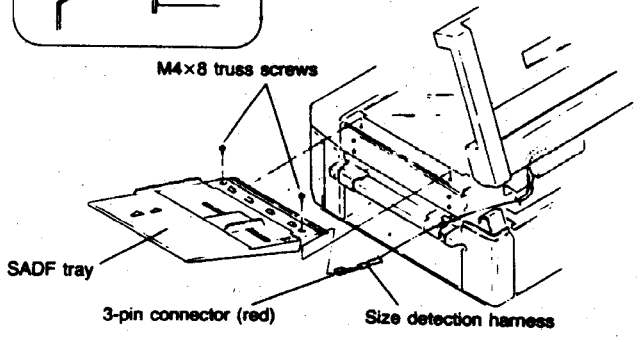


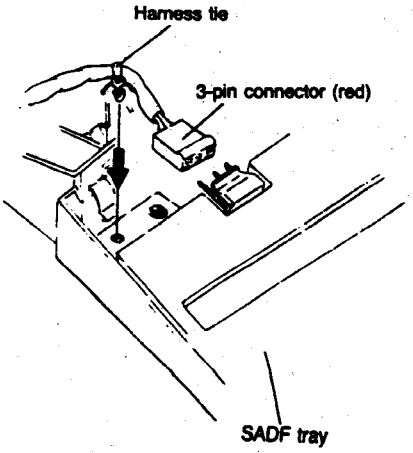
㉝ Bundle the copy machine harness with the power supply harness using one of the provided harness ties.
Secure the mirror motor harness with a harness tie as shown. (SF-7750 only)



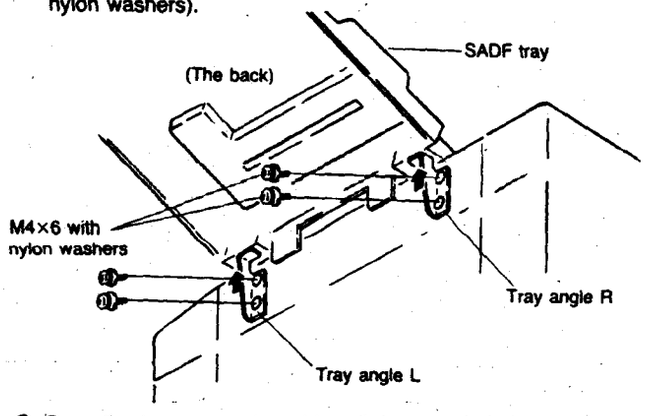
㉞ Install the SADF tray using the provided M4×8 truss screws.
㉟ Connect the size detection harness 3-pin connector to the 3-pin connector on the bottom of the SADF tray.
㊱ Insert the tab on the harness tie into the hole.
NOTE: Insert the front of the SADF tray under the edge of the document glass, and secure the SADF tray with the provided M4×8 truss screws.



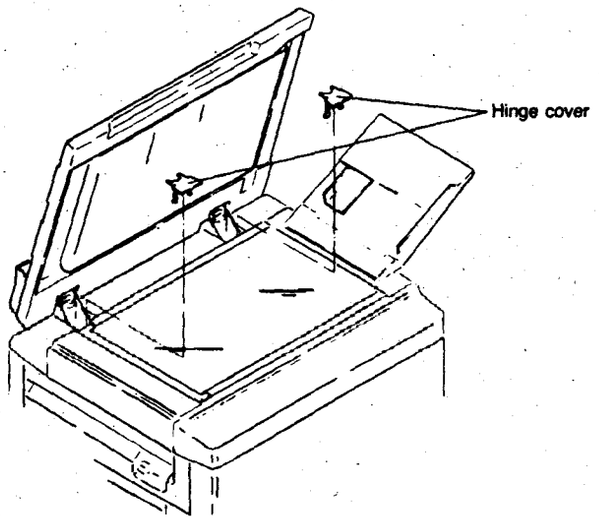




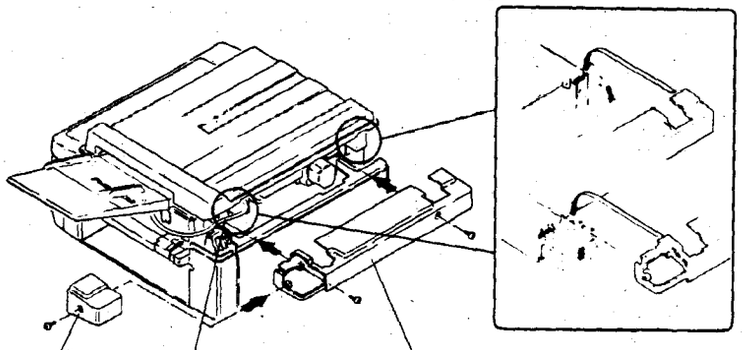
㉗ Set tray angles L and R firmly against the bottom of the SADF tray. Secure the angles with the provided screws (M4×6 with nylon washers).



㉘ Open the transport unit and install the provided hinge covers.



㉙ Reinstall the cabinet parts removed in ①~③.



NOTE: Be sure not to catch the size detection harness behind the rear cabinet.

3) Local mode programing

Make settings after installation on the copy machine complete.

NOTE: The system will not function properly if the correct setting are not made.

OPTION SELECTION AND COUNTER MODE SETTING.

Make the following adjustments when a semi-automatic document feeder (SF-466) or sorter (SF-413) is installed or when changing either the total counter or maintenance counter mode from single count to double count or from double to single.

[Method]

① Turn the copy machine power ON.

② Push the following to execute test command 78. C → P → 0 → P → [7] → [8] → PSW
When the ready lamp lights the current stored parameter is displayed.

③ Enter the code for the options and desired counter modes according to the table below.
□□ → PSW
(□□ = 2 digit data number)The ready indicator will go out and the new data setting will be shown in the copy quantity display.

Data setting	Document feeder installation	Sorter installation	*Counter counting method	
			Total counter	Maintenance counter
00	No	No	Double count	Double count
01	Yes			
02	No	Yes		
03	Yes			
10	No	No	Single count	
11	Yes			
12	No	Yes		
13	Yes			
20	No	No	Double count	Single count
21	Yes			
22	No	Yes		
23	Yes			
30	No	No	Single count	
31	Yes			
32	No	Yes		
33	Yes			

*When the double count mode is selected, a single 11"×17" (or A3) copy will be counted as two copies by the counter.

NOTE: The system will not function properly if the correct setting are not made.

⑤ Push the clear key to complete the setting.

4) Installation adjustments

A. Transport unit document feed roller speed adjustment.

① Close the transport section.

② Use the keys and keypad on the operation panel and enter the following key sequence.
C → P → 0 → P → [4] → [4] → PSW.
The document feed roller will turn for approximately 1–2 sec., and the document feed indicator on the panel will blink two or three times. This completes roller speed adjustment.

Be sure to adjust the transport unit document feed roller speed before adjusting the document feed sensor sensitivity.

B. Transport unit document feed sensor sensitivity adjustment.

① Close the transport section.

② Set a white sheet of copy paper in the SADF tray.

③ Now use the keys and keypad on the operation panel and enter the following key sequence.
C → P → 0 → P → [4] → [3] → PSW.
The sheet of paper will be fed and immediately discharged. The document feed indicator on the right side of the panel will blink two or three times. This completes the adjustment.

NOTE: If the paper is not fed, or if the original reminder indicator lights due to a problem in transportation, repeat the procedure from step ①~③.

C. Original size detector adjustment (on SF-7750 only).

Adjust the original size detector on the copy machine as follows.

① Close the transport section.

② Use the keys and keypad on the operation panel and enter the following key secuence.
C → P → 0 → P → [6] → [0] → PSW.

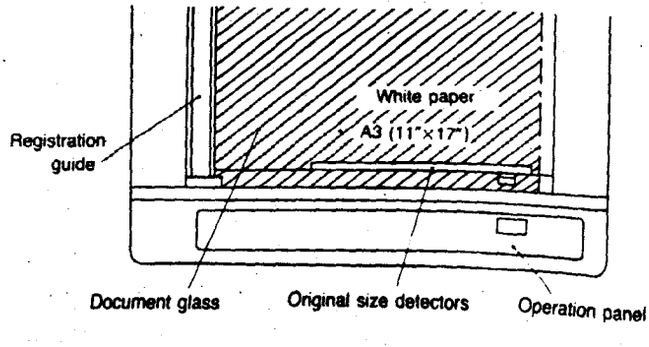
③ Press the print button (PSW) once more.

④ Open the transport section.

⑤ Set an 11"×17" (A3) white page on the front edge of the document glass so that it completely covers the original size detectors.

⑥ Close the transport section.

⑦ Press the print button once more.

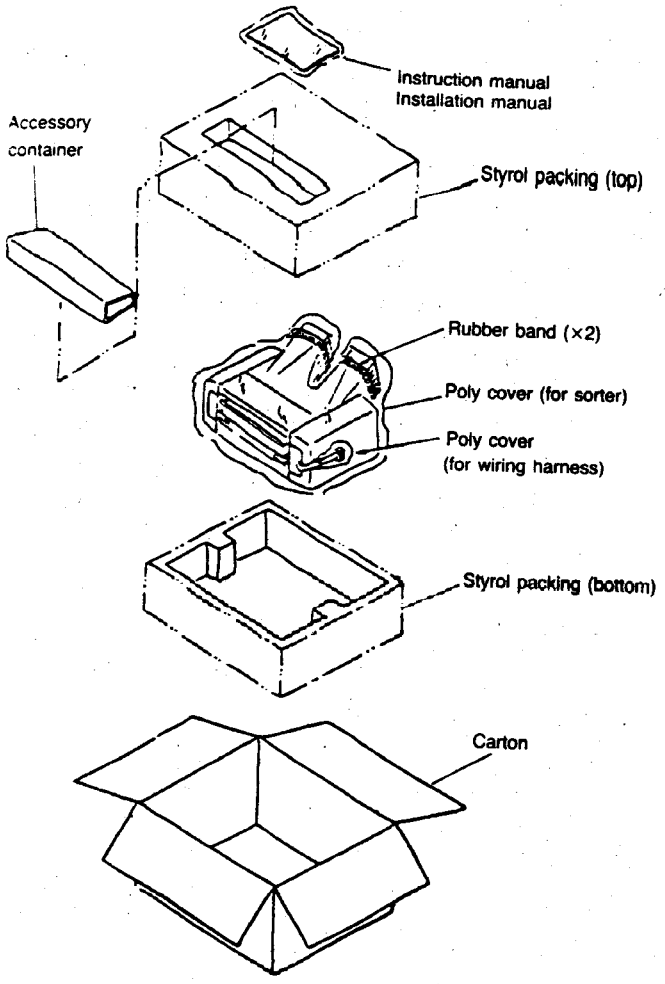


This completes adjustment of the original size detector.

2. Sorter (SF-413)

1) Unpacking

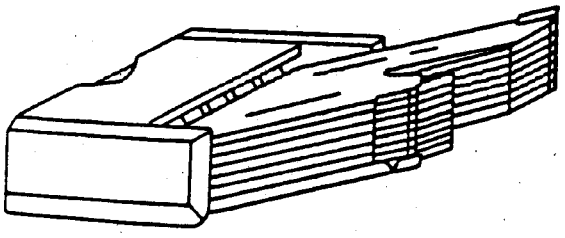
Open the package in the following order.



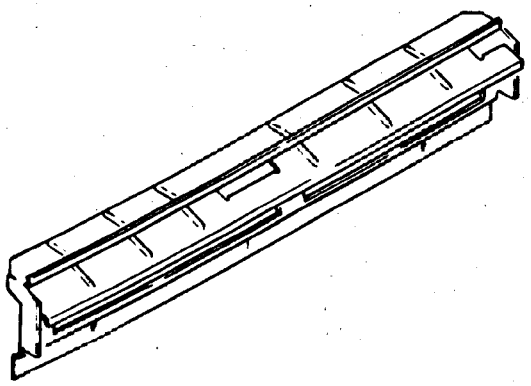
2) (Installation)

a. Parts list

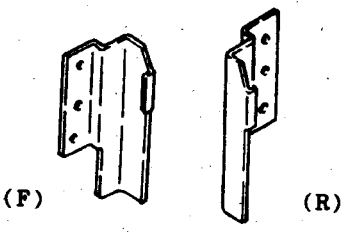
- Sorter



- Auxiliary paper guide



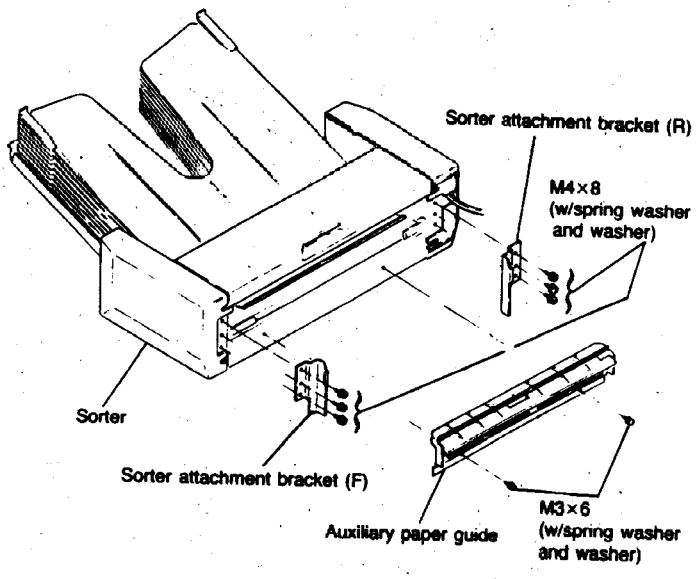
- Sorter attachment brackets, F and R



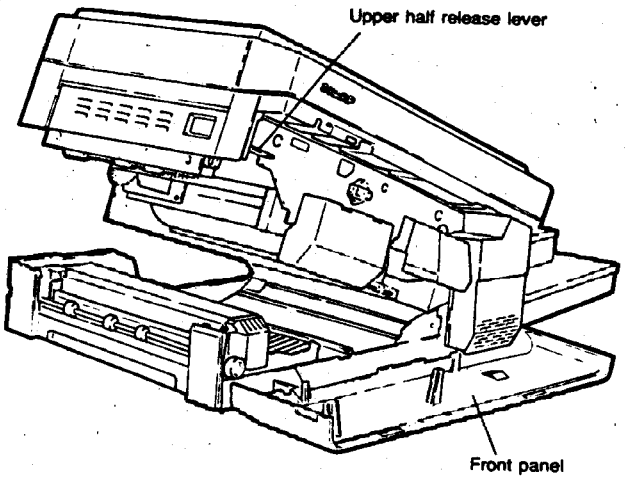
- Screws for attaching sorter brackets M4×8 (w/spring washer and washer) 6
- Screw for securing (F) M4×8 (w/spring washer) 1
- Screw for securing (R) M4×8 (brass) 1
- Screw for attaching auxiliary paper guide M3×6 (w/spring washer and washer) 2
- Installation manual

b. Installation

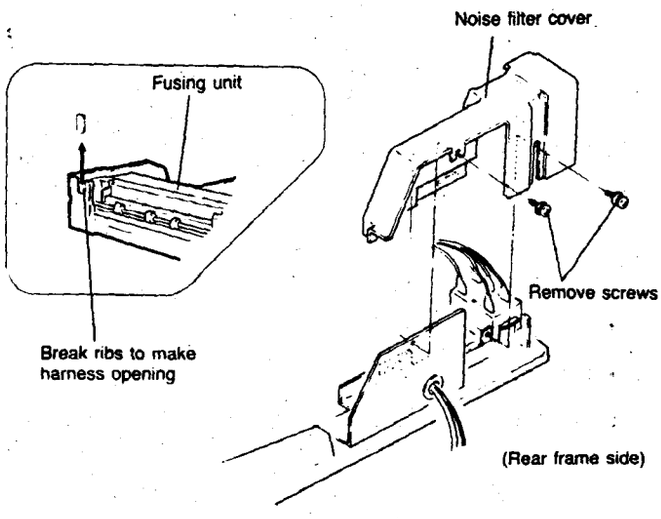
① Attach the auxiliary paper guide and sorter attachment brackets to the sorter.



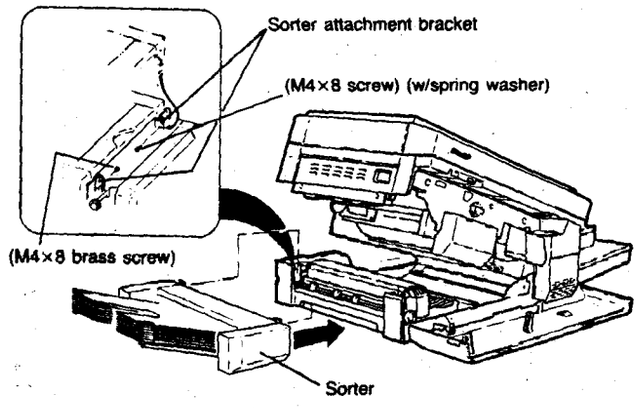
② Open the front panel of the copy machine. Now lift the upper half release lever and slowly open the upper half of the copy machine.



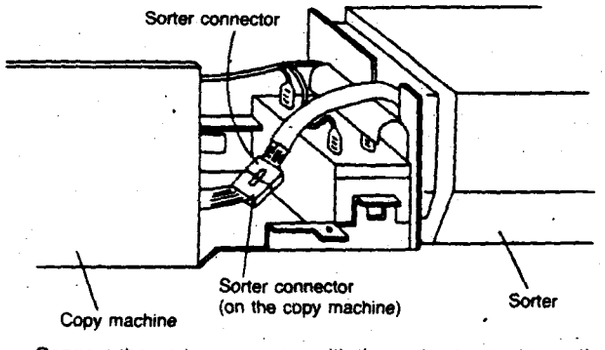
③ Remove the noise filter cover on the lower rear side of the copy machine.



④ Cut the ribs to make an opening for the harness.
⑤ Attach the sorter to the copy machine, and secure it in place from the inside with M4×8 (w/spring washer) for the front frame, M4×8 (brass) for the rear frame. And connect the sorter connector 11 pin with the sorter connector on the copy machine.

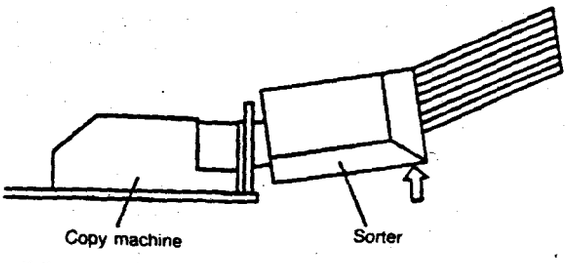


● Connecting the sorter connector



Connect the sorter connector with the sorter connector on the copy machine and make sure the harness is positioned as shown in the figure.

● Cautions on installation



If the mounting screw holes do not match the screw holes in the copy machine, lift slightly at the arrow (to tilt the sorter as shown in the figure) and then lower the sorter again. The screw holes should now be aligned.

⑥ Install the noise filter cover.

3) Local mode programing

Make settings after installation on the copy machine is complete.

NOTE: The system will not function properly if the correct setting are not made.

OPTION SELECTION AND COUNTER MODE SETTING.

Make the following adjustments when a semi-automatic document feeder (SF-466) or sorter (SF-413) is installed or when changing either the total counter or maintenance counter mode from single count to double count or from double to single.

① Turn the copy machine power ON.
② Push the following to execute test command 78. C → P → 0 → P → 7 → 8 → PSW
When the ready lamp lights the current stored parameter is displayed.
③ Enter the code for the options and desired counter modes according to the table below.
□□ → PSW
(□□ = 2 digit data number)
The ready indicator will go out and the new data setting will be shown in the copy quantity display.

Data setting	Document feeder installation	Sorter installation	*Counter counting method	
			Total counter	Maintenance counter
00	No	No	Double count	Double count
01	Yes			
02	No	Yes		
03	Yes			
10	No	No	Single count	
11	Yes			
12	No	Yes		
13	Yes			
20	No	No	Double count	Single count
21	Yes			
22	No	Yes		
23	Yes			
30	No	No	Single count	
31	Yes			
32	No	Yes		
33	Yes			

*When the double count mode is selected, a single 11"×17" (or A3) copy will be counted as two copies by the counter.
NOTE: The system will not function properly if the correct setting are not made.

⑤ Push the clear key to complete the setting.

[4] COPY QUALITY ADJUSTMENTS

Copy quality must be adjusted for any of the following:
- At the time of maintenance.
- After the drum current adjustments, after the coronas are replaced, after the corona wires are replaced, or after a high voltage unit is replaced.
- After replacing the CLC PWB unit or its components.
- After adjusting the VR on the CLC PWB.
- After replacing the auto exposure sensor (AE).
- After replacing, adjusting, troubleshooting, or disassembly of the optical system (copy lamp reflector, etc.).
- After disassembling, troubleshooting, or adjusting the optical system.
- After replacing the OPC drum.
- After replacing the Main PWB unit.
- When the trouble status "U2" is displayed.
- After replacement of the main PWB.
- After replacement of an 1C (RAM IC3) within the main PWB.
- After moving the exposure control plate W.

1. Precautions in copy quality adjustments

Observe the following before performing the copy quality adjustments.

① Clean components in the optical system (table glass, lens, mirror, copy lamp, and reflector).
② Clean the auto exposure sensor surface with a cloth dampened with alcohol. (UKOGM0049CSZZ)

NOTE: Wiping with a dry cloth will cause an electrostatic charge to the sensor and will attract more dust.

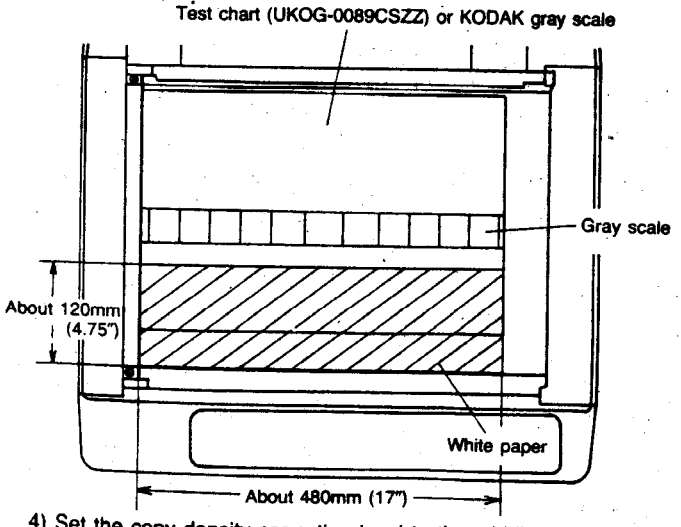
③ Clean the corona wires (MCU, TCU).
④ Clean the developer unit.
⑤ Clean the area near the OPC drum.
⑥ Clean the OPC drum cleaning blade.

2. Copy quality adjustment procedure

See the flowchart for copy quality adjustment procedures.

A. Description of the flowchart for copy quality adjustment procedure

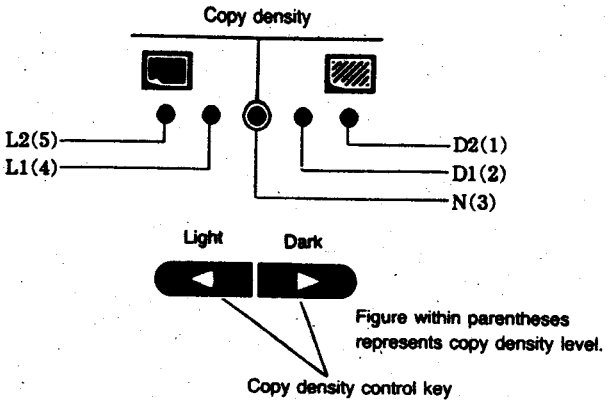
2) Place a test chart on the original table
Place four sheets of blank white paper, 120mm × 420mm, (4.75" × 17") on top of each other and place the test chart (UKOG-0089CSZZ) or KODAK gray scale beside or on it, so that the gray scale portion of the test chart can be copied.



4) Set the copy density correction level to the middle
When the doorswitch (DSW) is turned off by opening the front panel, the status "CH" is displayed in the copy number indicator and four out of five copy density indicators come active with the remaining one blinking. This blinking indicator indicates the copy density correction level currently employed, and it is possible to select another level using the copy density level control key.

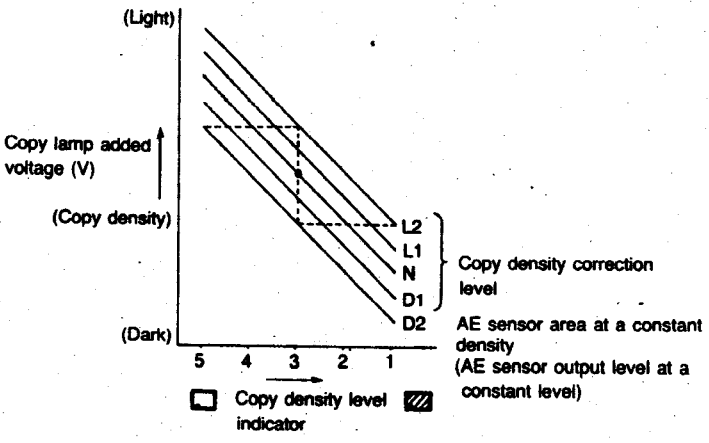
NOTE: To change the copy density correct level, keep the copy density set key depressed for a period of more than 2.5 second. Otherwise, the level may not be changed.

Each level of the copy density correction level is represented by L2, L1, N, D1, D2. In order to select another copy density correction level, it is necessary to set the key in the center (N) level – N blinking and the others are actived.
This feature is identical to the AE sensor used in the conventional models and is used to correct copy quality deterioration caused by fatigue of the drum and dust in the optical system by shifting the copy lamp added voltage.



When the copy density correction level is changed, the voltage added to the copy lamp shifts without changing the exposure slope.

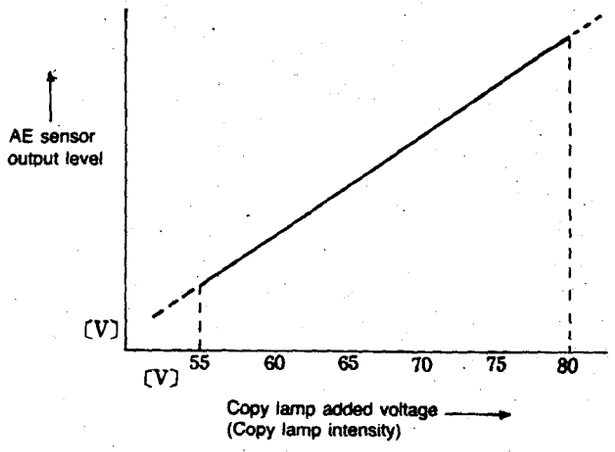
Copy density (copy lamp added voltage) characteristics for copy density level



NOTE:
The copy density correction level is not the same as the copy density level (whose levels are changed when the copy density control key is used,) they have a different significance.
- To change the copy density correction level, the copy density level (copy lamp added voltage) is shifted. Four out of five copy density indicators come active with the remaining one indicator blinking and the status "CH" on display (when the doorswitch is off,) to be ready to change the copy density correction level.
- To change the copy density level, the copy density level (copy lamp added voltage) itself is changed. It is possible to change the level when one of five copy density level indicators is active with the doorswitch actuated.

6) Test command 47
C → P → O → P → 4 → 7 → PSW
When the test command 47 is executed, the mirror base goes into action and the copy lamp driving voltage can be set within a range of 55V (110V) to 80V (160V) in an increment of 5V each, and, the AE sensor output characteristics against the copy lamp voltage added during copying of a white original (copy lamp intensity) is stored in the main PWB RAM. The copy density adjustment (test command 46) is conducted on the basis of these characteristics.

Copy lamp added voltage (copy lamp intensity) vs. AE sensor output characteristics (AE sensor measurement area is white)



Depending on an individual copier, there is a variation in its AE sensor characteristics. Therefore, the copy lamp added voltage needs to be adjusted using the test command 47./

8) Test command 46

C → P → O → P → 4 → 6 → PSW

Execute the above operation to go into test command 46 mode to determine the variation range of the copy density and copy density level, preseting two values of CLA and CLB.

CLA is the preset value used to determine the standard copy density (AE sensor output level for the standard copy lamp added voltage).

The standard copy density is the level that the strip 0.3 (3) of gray scale is distinctly copied but the gray scale strip 0.2 (2) slightly copied in copying the AE operating white area under the copy density level "5". The CLA value must be set to obtain the above results. Figure within parentheses represents the grade of the KODAK gray scale.

The AE sensor output level is computed by the CPU in reference to the copy lamp added voltage/AE sensor output characteristics in the memory and stored in the main PWB RAM for the copy lamp added voltage (standard copy lamp added voltage). Copy density, therefore, is controlled in reference to the AE sensor output level.

CLB is the preset value which is used to determine a single step variation for copy lamp voltage steps.

It has to be so set with the CLB to obtain a copy which the gray scale strip 0(A) is distinctly copied at copy density level "1" and the strip 0.1 (A) slightly copied.

Since the CLA preset value corresponds to the standard copy lamp added voltage, a figure between 55 to 80 is valid.

Figure within parentheses represents the grad of the KODAK gray scale.

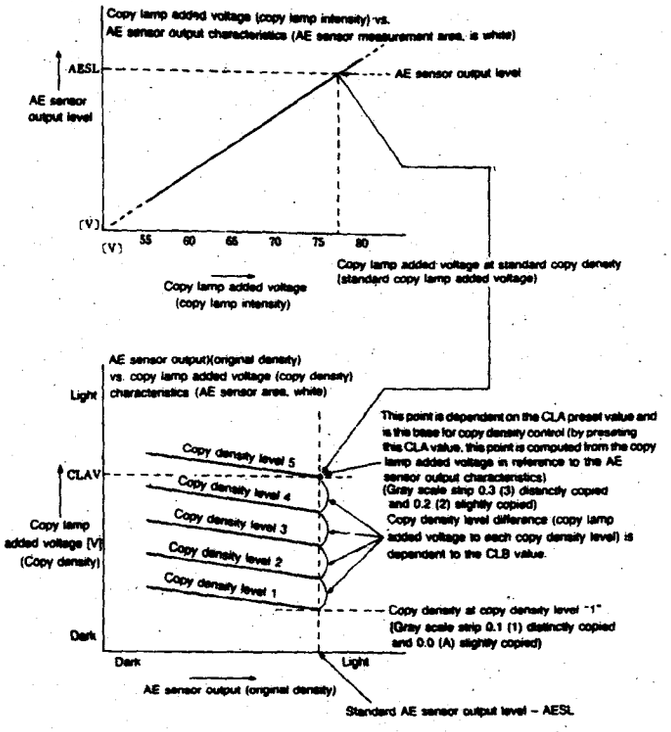
(Ex) Basic copy lamp added voltage (V) 70V (100V series) 140V (200V series)
CLA preset value 70

The CLA value for the 200V series doubles that of 100V series and corresponds to the standard copy lamp added voltage.

For the CLA, it is possible to preset from 0 to 99. It is programmed to hold to the standard copy lamp added voltage below 55V (110V) and above 80V (160V), even if it is set at 0~54 and 81~99.

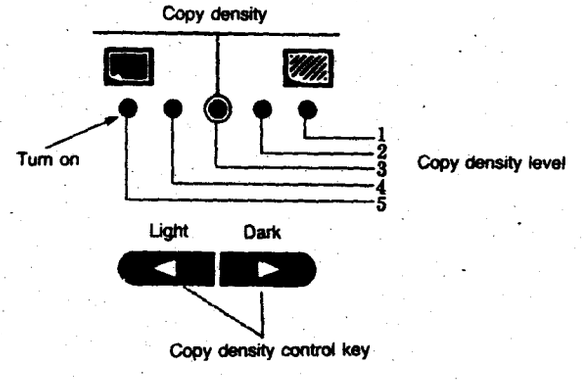
Basic copy lamp added voltage [V]	55V	55～80V	80V	(100V series)
	110V	110～160V	160V	(200V series)
CLA preset value	0～54	55～80	81～99	
	Invalid	Valid	Invalid	

A single step of CLB corresponds to a copy lamp added voltage difference of 0.1V (0.2V) which is a single step variation of copy density level. It is possible for CLB to preset a number between 0 and 99, enabling an adjustment voltage difference between 0 and 9.9V (0 to 19.8V). Figure within parenthesis represents the value for the 200V series.


Copy lamp added voltage (copy lamp intensity) vs.
AE sensor output characteristics (AE sensor measurement area, is white)
AESL
AE sensor output level
AE sensor output level
[V]
55
60
65
70
75
80
Copy lamp added voltage
(copy lamp intensity)
Copy lamp added voltage at standard copy density
(standard copy lamp added voltage)
AE sensor output)(original density)
vs. copy lamp added voltage (copy density)
characteristics (AE sensor area, white)
Light
CLAV
Copy lamp added voltage [V] (Copy density)
Copy density level 5
Copy density level 4
Copy density level 3
Copy density level 2
Copy density level 1
This point is dependent on the CLA preset value and is the base for copy density control (by presetting this CLA value, this point is computed from the copy lamp added voltage in reference to the AE sensor output characteristics)
(Gray scale strip 0.3 (3) distinctly copied and 0.2 (2) slightly copied)
Copy density level difference (copy lamp added voltage to each copy density level) is dependent to the CLB value.
Copy density at copy density level "1"
(Gray scale strip 0.1 (1) distinctly copied and 0.0 (A) slightly copied)
Dark
Dark
Light
AE sensor output (original density)
Standard AE sensor output level – AESL

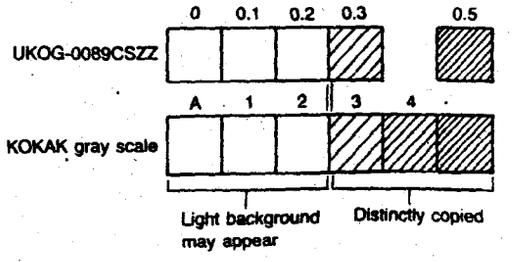
9) Set the copy density level to "5".

Have the copy density indicator "5" activated using the copy density control key.

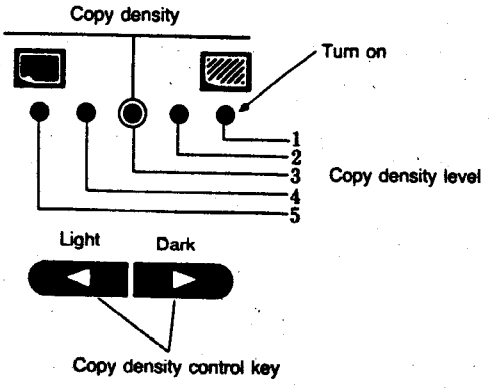


11) Check the copy

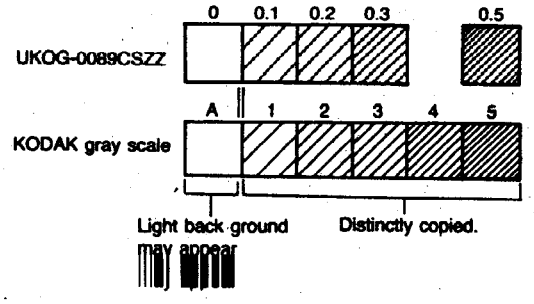
Check that the 0.3 (3) strip should appear distinctly copied, bu a light background may appear in the 0.2 (2) strip.



12) Set the copy density level to "1".
Have the copy density indicator "1" activated using the copy density control key.



14) Check the copy
Check that the 0.1 (1) strip should appear distinctly copied, but a light background may appear in the 0 (A) strip.



16), 19) Read test command 46 CLA preset value.
Push C → P → O → P → [4] → [6] → PSW to go into test command 46 mode. The CLA preset value will be displayed in the copy number display window. (The pause indicator must be off in this instance.)

18) Preset a CLA value which is larger than the value read in step 16).

□ → □ → PSW

The larger the preset, the lighter the standard copy image becomes.
Increasing the preset value by "1" increases the copy lamp added voltage by 1V (2V). However, it will stay at 80V (160V) even if a value above 80 is attempted. Figure within parenthesis represents the value for the 200V series.

21) Preset the CLA value smaller than the value read in step 19).
Do the following key operation in the test command 46 mode with the pause lamp off. The smaller the preset value, the darker the standard copy image becomes.
□ → □ → PSW

Decreasing the preset value by 1 decreases the copy lamp added voltage by 1V (2V). However, it will stay at 55V (110V) even if a value below 55 is attempted.

23), 27) Read the CLB preset value by test command 46.
Push C → P → O → P → [4] → [6] → PSW → P (pause indicator on) to bring the CL B preset value on the display.

25) Preset the CLB value which is smaller than the value read in step 23).

□ → □ → PSW

Decreasing the preset value by 1 decreases the copy lamp added voltage difference by 0.1V (0.2V). Larger the preset value, the darker the copy is produced at the copy density level "1".

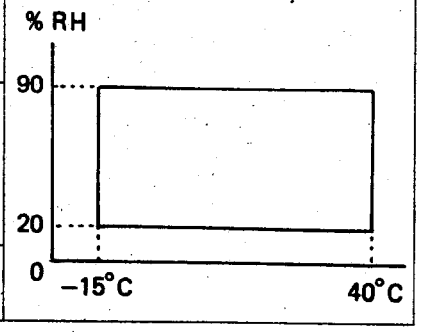
29) Preset the CLB value which is larger than the value read in step 27).

□ → □ → PSW

Increasing the preset value by 1 increases the copy lamp added voltage difference by 0.1V (0.2V). The larger the preset value, the darker the copy is produced at copy density level "1".

[5] SUPPLIES

1. DRUM, DEVELOPER, TONER

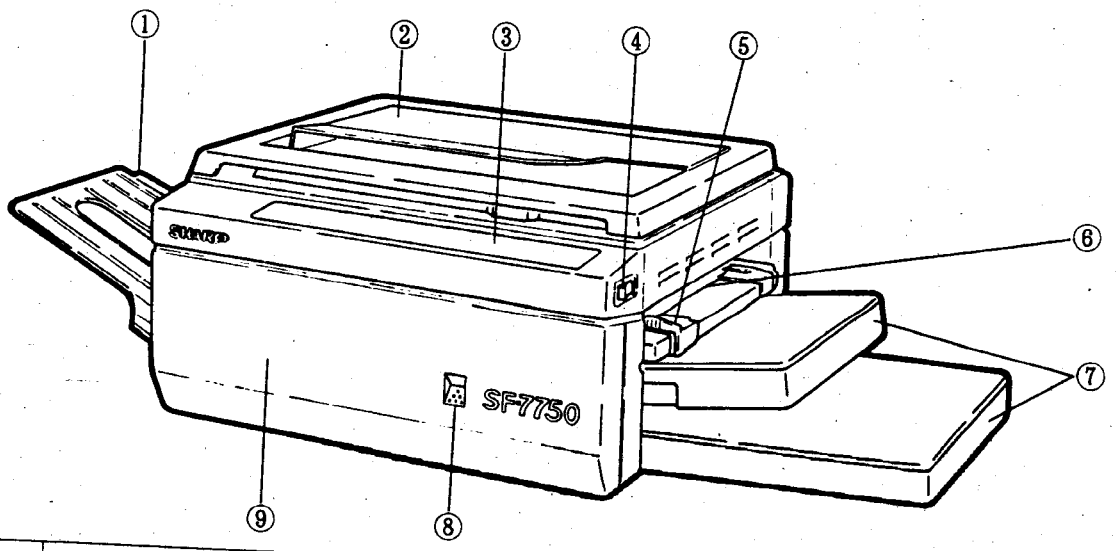
Item	* Approximate life	Storage period	Storage environment
Drum	40,000 copies	24 months (From production month)	
Developer	Black 40,000 copies Red 10,000 copies Blue 10,000 copies Brown 10,000 copies Green 10,000 copies	24 months	
Toner (140g)	3,000 copies for black, 2,500 copies for red, brown, green and blue for A4 or letter size with 6% toned area.	24 months	

* These are estimates only, life will vary depending on actual usage.

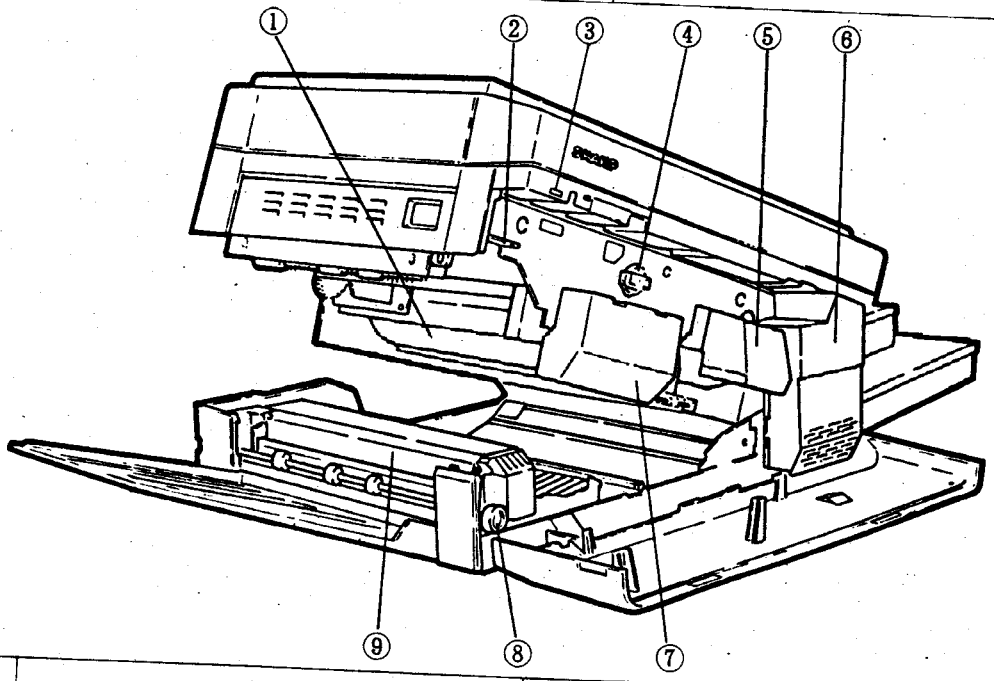
Name		Contents	Item name	Life
Drum unit		OPC drum × 1 Blade × 1	(SF-770DR)	40K
Developer (BLACK) (RED) (BLUE) (BROWN) (GREEN)		Developer × 1 (0.8 kg)	(SF-770DV1) (SF-770DV2) (SF-770DV3) (SF-770DV4) (SF-770DV5)	40K 10K 10K 10K 10K
Toner kit	(BLACK)	Toner × 1 (140g) Waste toner collect bottle × 1	(SF-770T1)	3.0K
Toner kit	(RED) (BLUE) (BROWN) (GREEN)	Toner × 1 (140 g) Waste toner collect bottle × 1	(SF-770T2) (SF-770T3) (SF-770T4) (SF-770T5)	2.5K 2.5K 2.5K 2.5K
Developer kit (RED) (BLUE) (BROWN) (GREEN)		Developer (0.8 kg) × 1 Toner × 1 (24 g) Developer unit × 1 Case × 1 Waste toner collect bottle × 1	(SF-770K2) (SF-770K3) (SF-770K4) (SF-770K5)	
Heat roller kit		Teflon roller × 1 Silicon roller × 1 Separator pawl (upper) × 4 Separator pawl (lower) × 3	(SF-770HR)	80K
Cleaning roller		Oil impregnated lower heat roller cleaning roller × 1 Oil impregnated thermistor cleaning roller × 1	(SF-770RL)	40K

[6] EXTERNAL AND INTERNAL STRUCTURE

1. External parts

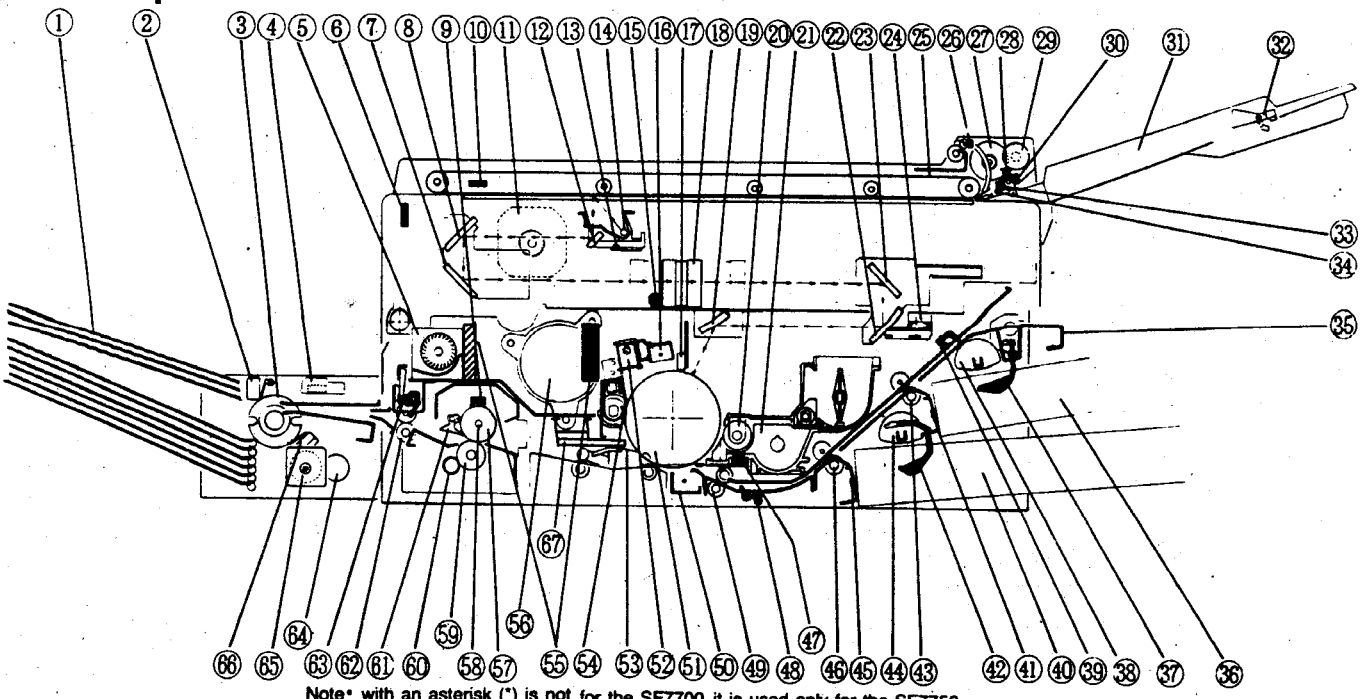


①	Copy tray	②	Original table
③	Operation panel	④	Power switch
⑤	Manual bypass guide	⑥	Manual bypass table
⑦	Paper cassette	⑧	Color check window
⑨	Front panel		



①	OPC drum	②	Clam shell open lever
③	Doorswitch (DSW)	④	Main corona unit
⑤	Developer unit	⑥	Power supply PWB
⑦	Waste toner collect bottle	⑧	Fuser roller crank
⑨	Fuser unit		

2. Internal parts



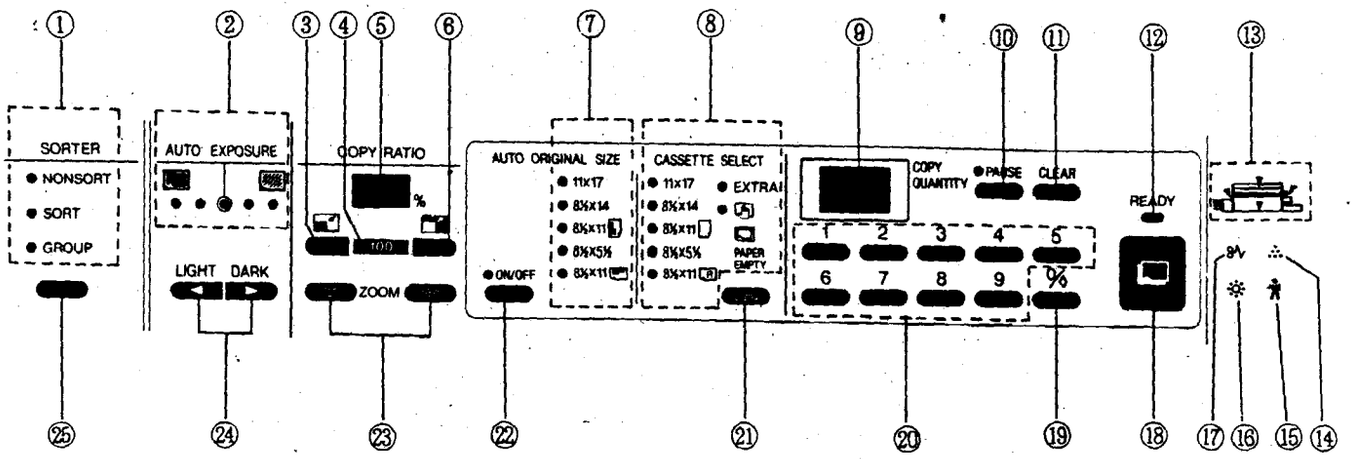
Note: with an asterisk (*) is not for the SF7700 it is used only for the SF7750.

①	Sorter bin	②	Sorter upper cover switch	③	Sorter wheel cam
④	Sorter lower position sensor	⑤	Cooling fan motor	⑥	Mirror position sensor (MHPS)
⑦	No.3 mirror	⑧	No.2 mirror	⑨	Thermistor
⑩	SADF motor power supply switch (A7)	※⑪	Mirror motor	⑫	No.1 mirror
⑬	AE sensor	⑭	Copy lamp	※⑮	Lens home position sensor
⑯	Main corona unit	⑰	Blank lamp unit	⑱	Lens
⑲	No.1 mirror	⑳	MG roller	㉑	Developer unit
㉒	No.5 mirror	㉓	No.4 mirror	※㉔	Lens/Mirror drive motor
㉕	SADF carry belt	㉖	SDF original exit sense switch (AS4)	㉗	SADF belt drive motor
㉘	Paper feed roller rotation sensor (AS5)	㉙	SADF paper feed motor	㉚	SADF original entry sensor switch (AS2)
㉛	Original feed tray	㉜	SADF original size sensor sensor switch	㉝	SADF original pass sensor switch (AS3)
㉞	SADF open switch	㉟	Manual feed table	㊱	Upper cassette
㊲	Upper cassette paper empty switch	㊳	Upper cassette paper feed roller	㊴	Manual paper feed sensor switch (AS4)
㊵	Lower cassette	㊶	Upper cassette paper size sensor switch	㊷	Lower cassette paper empty switch
㊸	Upper cassette paper feed roller	㊹	Lower cassette paper feed roller	㊺	Lower cassette paper size sensor switch
㊻	Lower cassette paper feed roller	㊼	Toner level sensor	㊽	Paper entry sensor switch (MS1)
㊾	Paper supper roller	㊿	Transfer corona unit	(51)	OPC drum
(52)	Discharge lamp	(53)	Separator unit (separation tape)	(54)	OPC drum cleaning blade
(55)	Ozone filter	(56)	Main motor	(57)	Upper heat roller
(58)	Heater lamp	(59)	Lower heat roller	(60)	Cleaning roller
(61)	Fuser separator pawl	(62)	Paper delivery roller	(63)	Paper exit sensor switch (MS3)
(64)	Sorter drive motor	(65)	Sorter feed motor	(66)	Sorter cam switch
(67)	Separation sensor				

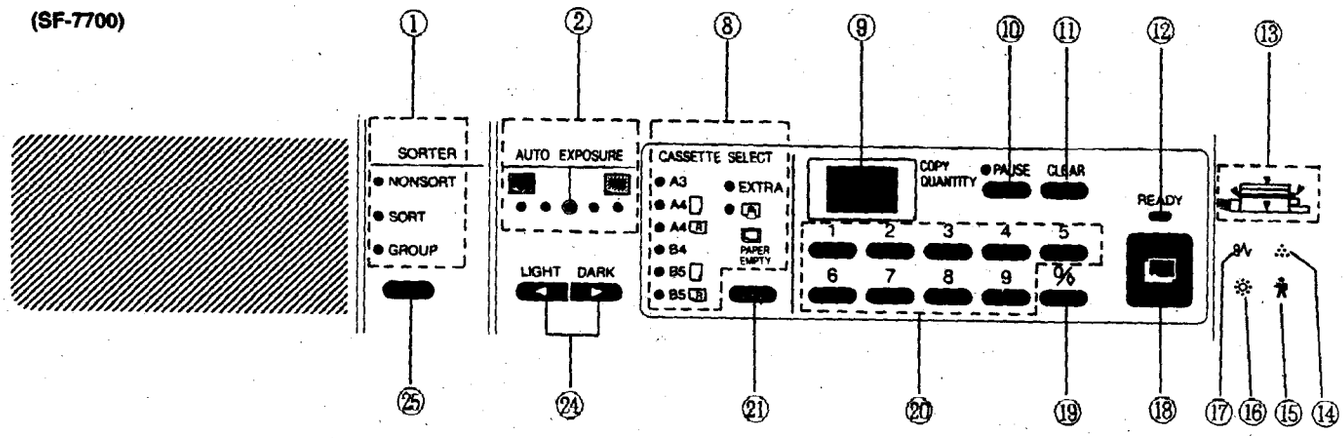
Note: with an asterisk (※) is for the SF-7750 only.

3. Operation panel

(SF-7750)



(SF-7700)

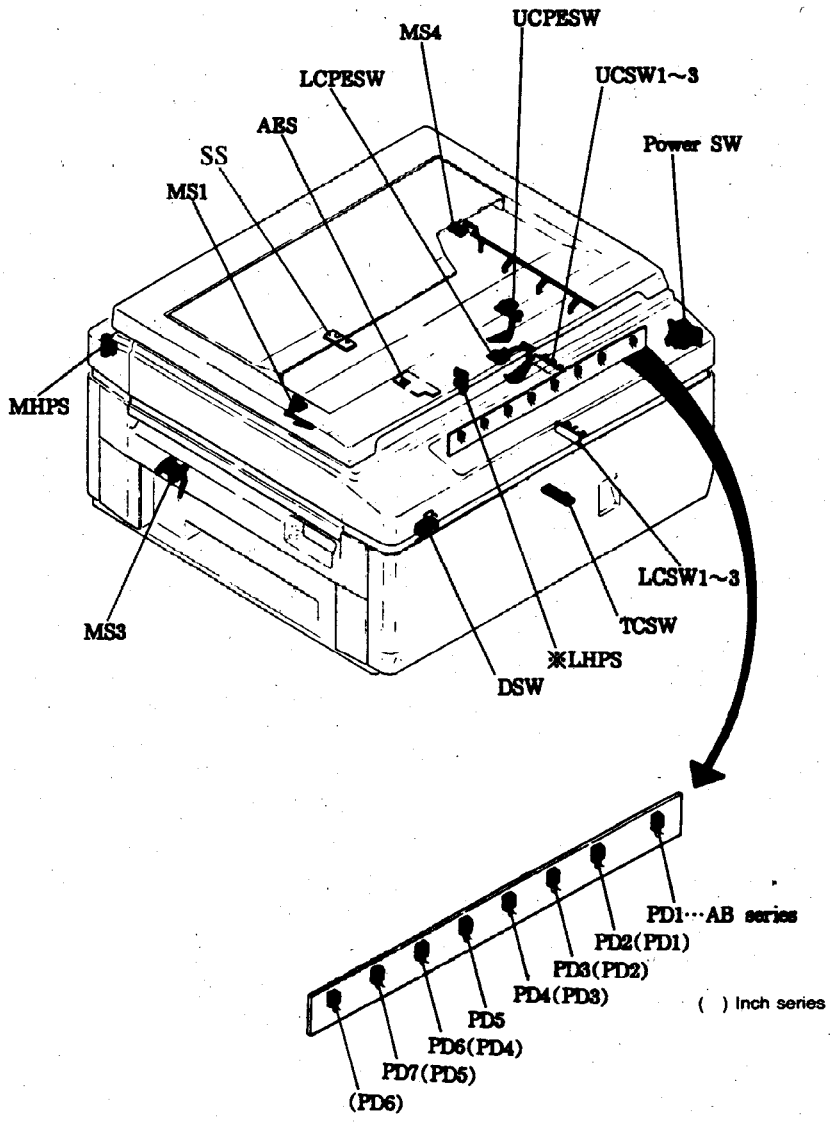


1	Sort mode indicator	2	Automatic exposure copy density indicator
3	Reduce key (fixed magnification ratio)	4	Normal key
5	Magnification ratio indicator	6	Enlarge key (fixed magnification ratio)
7	Original size indicator	8	Paper size indicator
9	Copy number indicator	10	Pause/display key
11	Clear key	12	Ready indicator
13	Misfeed location indicator	14	Toner replenish indicator
15	Maintenance indicator	16	Developer replace indicator
17	Misfeed indicator	18	Print switch
19	Zero/read key	20	Ten key (copy number set keys)
21	Cassette select key	22	Paper/magnification ratio select key
23	Zoom key	24	Exposure control key
25	Sorter mode select key		

4. Switches and sensors

(1) SF7700/7750

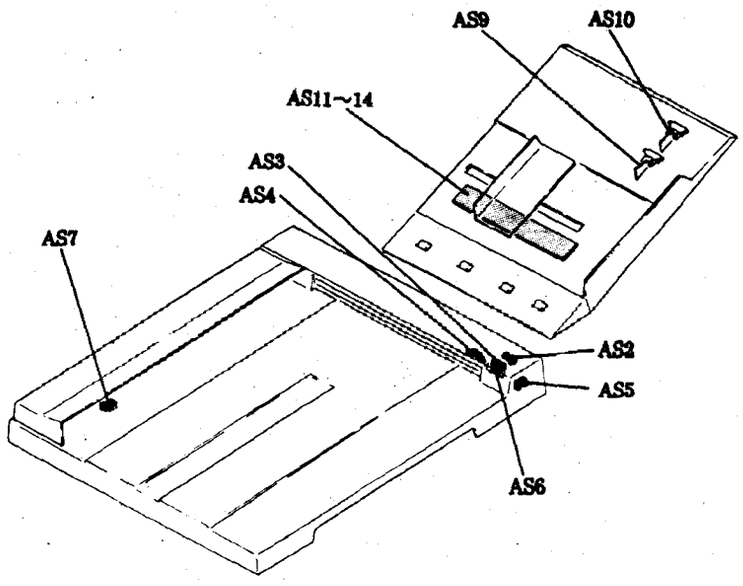
Parts name	Type	Description	SF-7700		SF-7750	
			AB series	Inch series	AB series	Inch series
MS1	Reed switch	Paper entry sensor	o	o	o	o
MS3	Reed switch	Paper exit sensor	o	o	o	o
MS4	Reed switch	Manual feed sensor	o	o	o	o
MHPS	Photosensor	Mirror home position sensor	o	o	o	o
*LHPS	Photosensor	Lens home position sensor	–	–	o	o
PD1 CH1	Infrared sensor	Original size sensor (A3, 11" × 17")	–	–	o	o
PD2 CH2	Infrared sensor	Original size sensor (B4, 8-1/2" × 14")	–	–	o	o
PD3 CHM	Infrared sensor	Original cover position sensor	–	–	o	o
PD4 CH3	Infrared sensor	Original size sensor (A4L, 8-1/2" × 11")	–	–	o	o
PD5 CH4	Infrared sensor	Original size sensor (A5L, 8-1/2" × 11")	–	–	o	o
PD6 CH5	Infrared sensor	Original size sensor (A4P, 8-1/2" × 6-1/2")	–	–	o	o
PD7 CH6	Infrared sensor	Original size sensor (B5P)	–	–	o	o
DSW	Microswitch	Off when the front panel is open.	o	o	o	–
Power SW	Seesaw switch	Power switch	o	o	o	o
UCSW1~3	Push switch	Upper cassette size sensor	o	o	o	o
LCSW1~3	Push switch	Lower cassette size sensor	o	o	o	o
UCPESW	Reed switch	Upper cassette paper empty sensor	o	o	o	o
LCPESW	Reed switch	Lower cassette paper empty sensor	o	o	o	o
TCSW	Magnetic sensor	Toner concentration sensor	o	o	o	o
AES	Photosensor	Original tone sensor	o	o	o	o
SS	Photosensor	Paper separation sensor	o	o	o	o



Note: with an asterisk (※) is for the SF-7750 only.

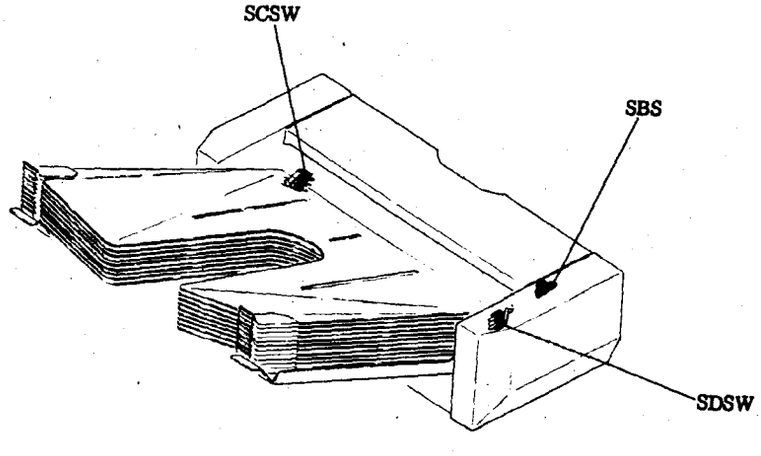
(2) SF-466

Parts name	Type	Function
AS2	Photosensor	Original entry sensor
AS3	Photosensor	Original pass sensor (original length detection)
AS4	Photosensor	Original exit sensor
AS5	Photosensor	Original feed roller rotation pulse sensor
AS6	Reed switch	Original transport unit position sensor
AS7	Microswitch	SDF motor power supply
AS9	Reed switch	Original size (length) sensor (A3, B4, 11" × 17", 8-1/2" × 14", 8-1/2" × 11" portrait)
AS10	Reed switch	Original size (length) sensor (11" × 17", 8-1/2" × 14")
AS11	Slide switch	Original size (width) sensor (A3, A4P, 11" × 17", 8-1/2" × 11" portrait)
AS12	Slide switch	Original size (width) sensor (B4 B5)
AS13	Slide switch	Original size (width) sensor (A4L, A4P, 8-1/2" × 11" landscape, 8-1/2" × 14", 8-1/2" × 5-1/2" landscape)
AS14	Slide switch	Original size (width) sensor (B5 landscape)



(3) SF-413

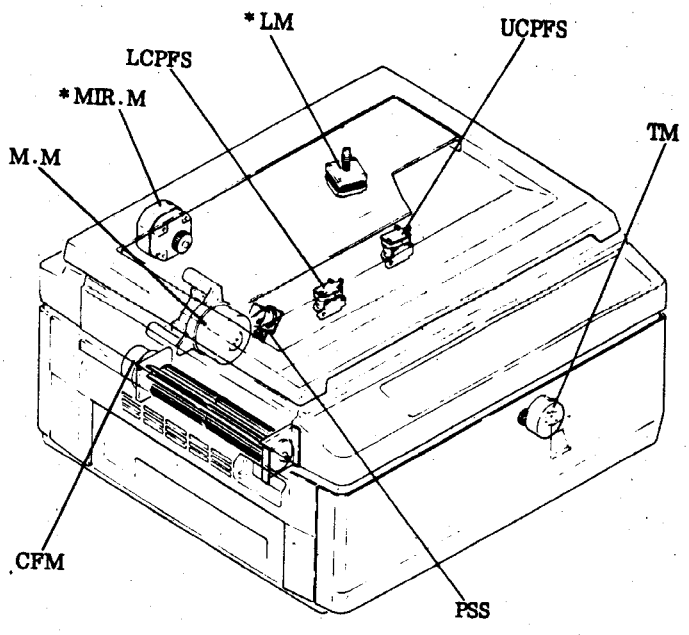
Parts name	Type	Function
SCSW	Microswitch	Sorter cam switch
SBS	Photosensor	Sorter bin home position sensor
SDSW	Microswitch	Off when the sorter top cover is open



5. Motors and solenoids

(1) SF-7700/7750

Parts name	Type	Function
CFM	DC brushless fan motor	Cooling and ventilation fan motor
MM	DC 3-phase brushless motor	Developer unit, fusing roller, paper feed rollers drive motor
*MIRM	DC 3-phase brushless motor	Mirror base drive motor
*LM	Stepping motor	Mirror/lens drive motor (SF-7750 only)
TM	Synchronous motor	Toner supply motor
UCPFS	Solenoid	Upper cassette paper feed roller clutch solenoid
LCPFS	Solenoid	Lower cassette paper feed roller clutch solenoid
PSS	Solenoid	PS roller paper feed solenoid



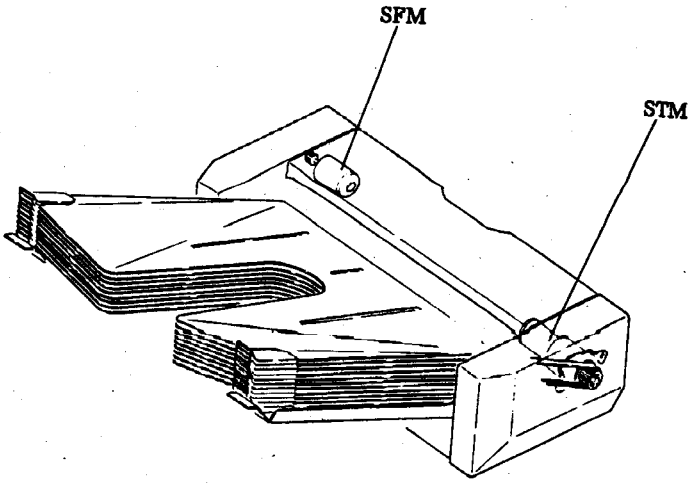
Note: with an asterisk (*) is for the SF-7750 only.

(2) SF-466

Parts name	Type	Function
DTM	DC motor	Original feed motor
DFM	DC motor	Original carry belt, original eject motor

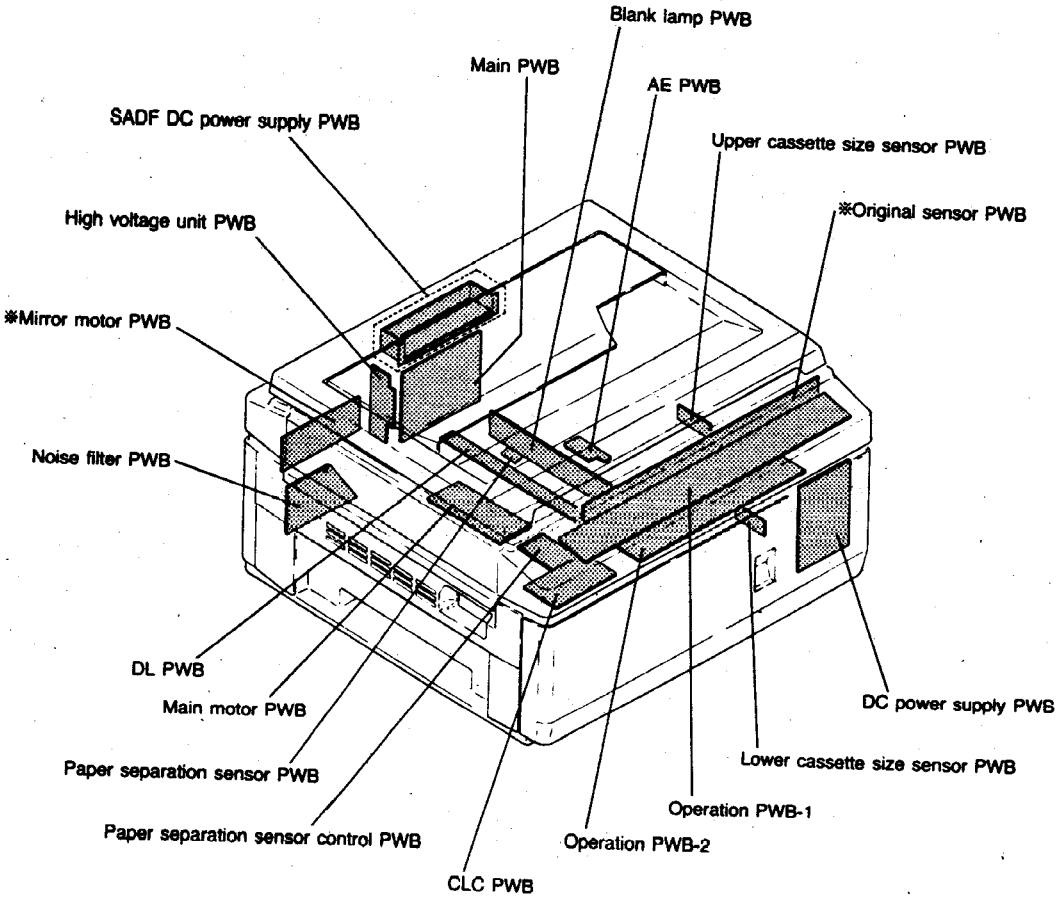
(3) SF-413

Parts name	Type	Function
SFM	DC motor	Sorter paper transport motor
STM	DC motor	Sorter bin operating motor



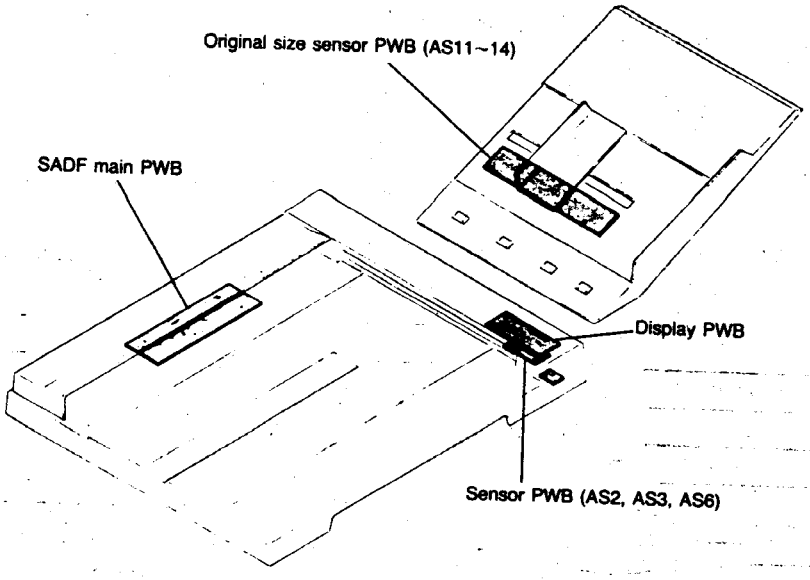
6. PWB

(1) SF-7700/7750

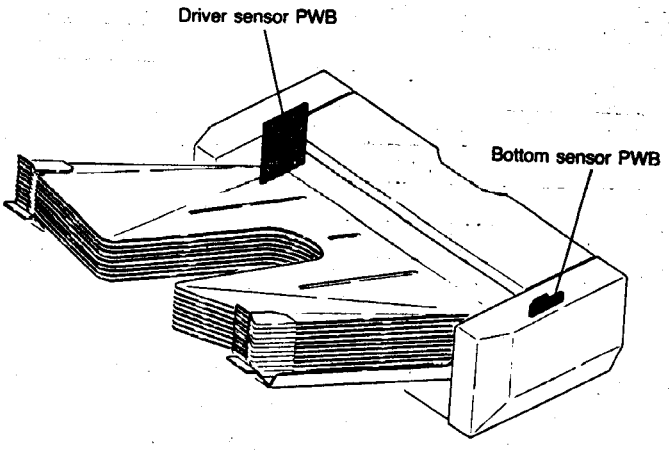


Note: with an asterisk (※) is for the SF-7750 only.

(2) SF-466

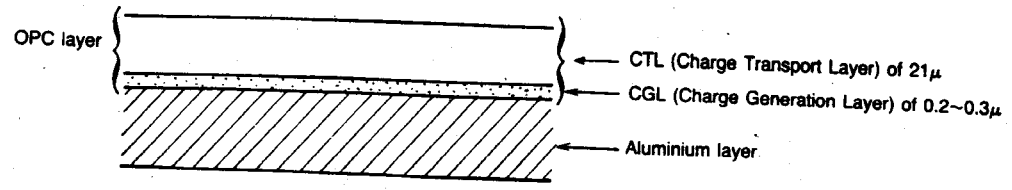


(3) SF-413

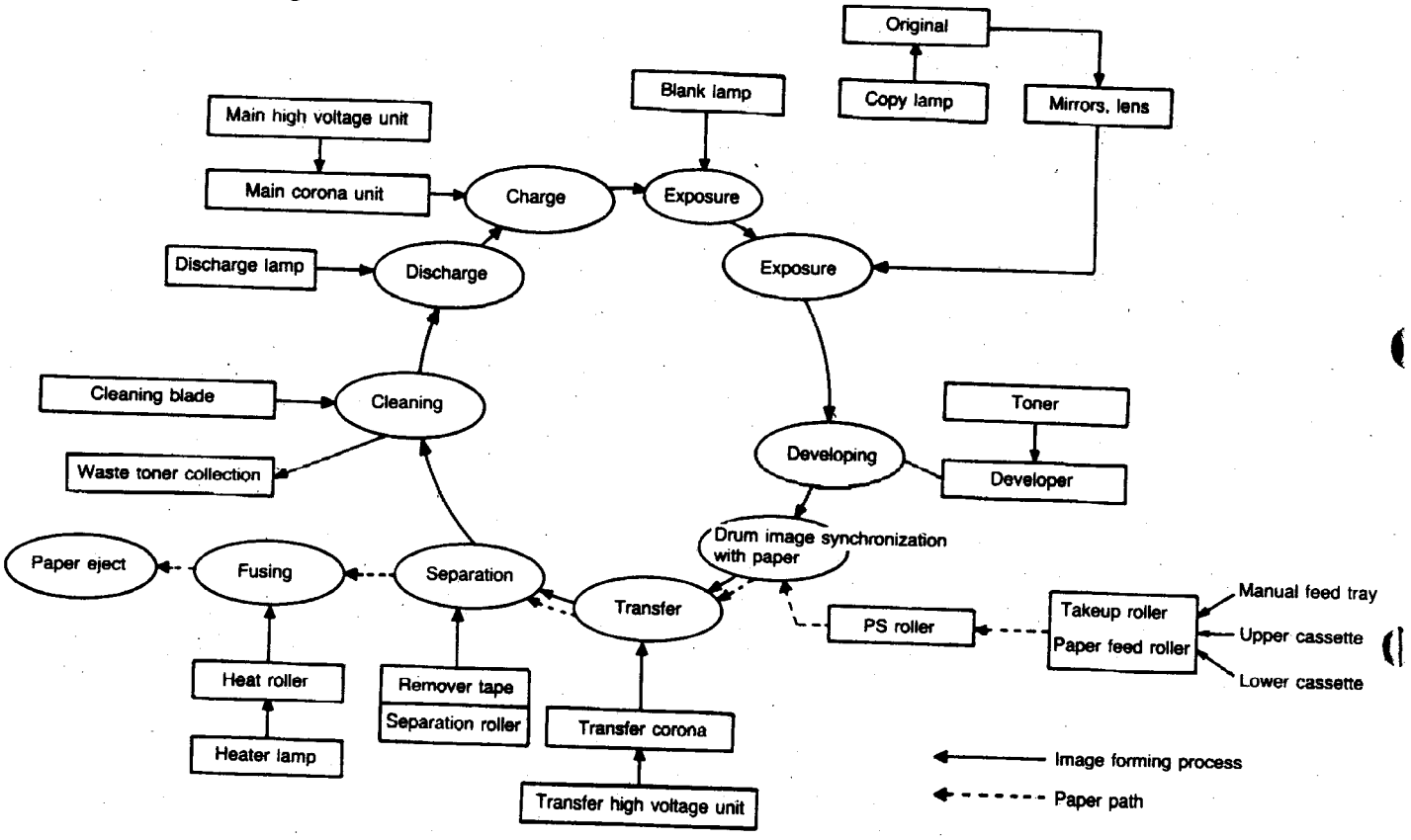


[7] COPY PROCESS

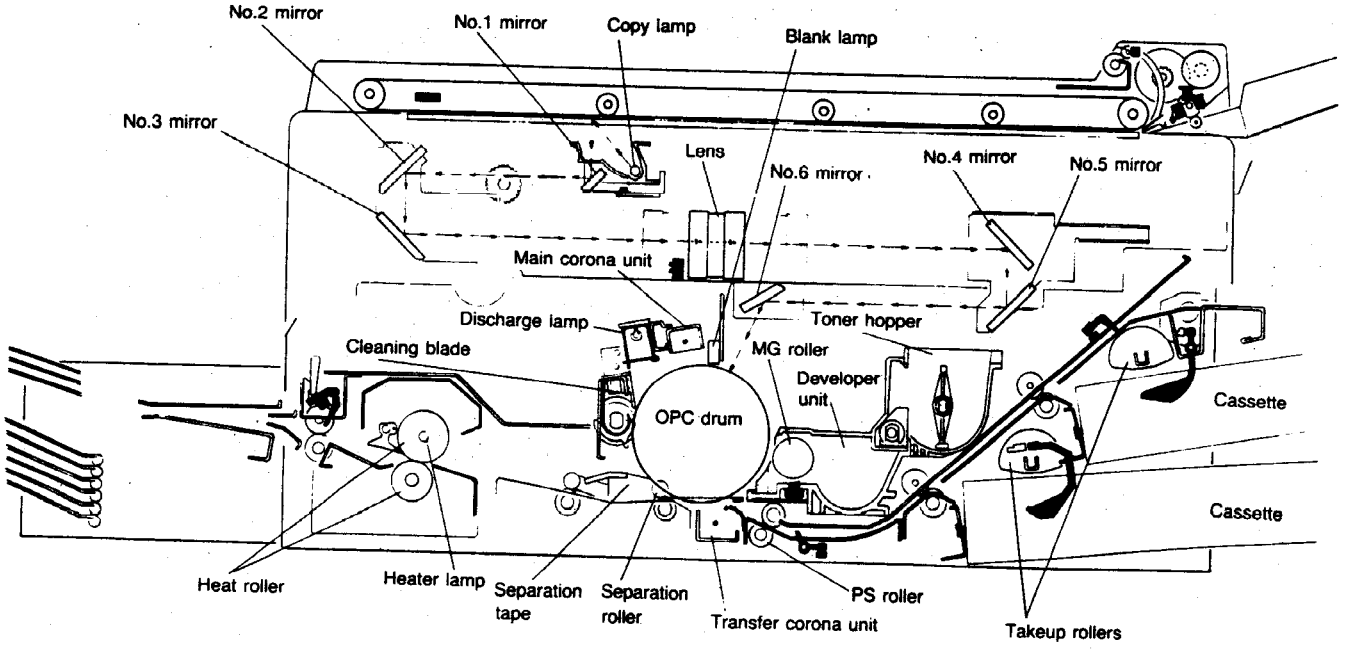
- The SF-7700/7750 uses an Organic Photo Conductor (OPC) for its drum.



1. Functional diagram



2. Internal structure



3. The basic copy process

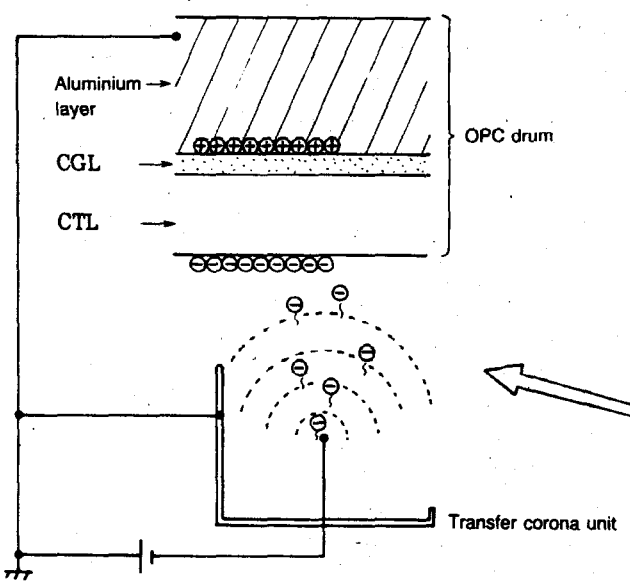
Operational theory
Charge exposure and development
A charge is applied over the OPC drum surface from the main corona unit. The image exposed by the copy lamp is projected over the drum. The charge on the drum surface is dissipated in all area except, for the character areas of the original, to form a latent image on the drum surface. Toner is attracted to the charge on the drum surface and a visible image is now formed on the drum.

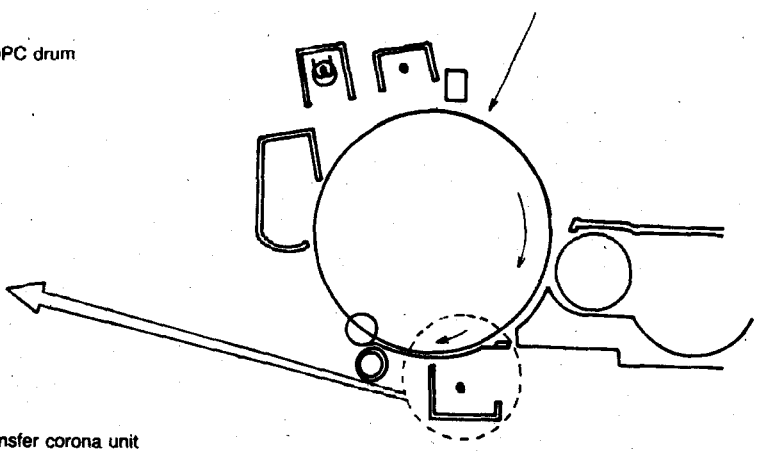
Step 1. Charge (Transfer corona unit)
A uniform negative charge is applied over the OPC drum surface by transfer corona unit.
Step 2. Cleaning
The residual toner left on the drum surface after transfer is removed by the cleaner unit.
Step 3. Optical discharge
Residual charge on the drum surface is removed by the discharge lamp.
After STep 1 (charge), Step 2 (cleaning) and Step 3 (discharge), the drum surface potential becomes stable and is ready for operation.
Step 4. Charge (Main corona unit)
A uniform negative charge is applied over the drum surface by the main corona unit.
Step 5. Exposure
An electrostatic latent image is formed over the drum surface.
Step 6. Developing
The electrostatic latent image is converted into a visible image by the toner.
Step 7. Transfer (Transfer corona unit)
The visible image on the drum surface is transferred onto the copy paper.
Step 8. Cleaning
Toner remaining on the drum is collected by the cleaner blade.
Step 9. Optical discharge
Residual charge on the drum surface is removed.

4. Copy steps

Step 1: Charge (Transfer corona unit)

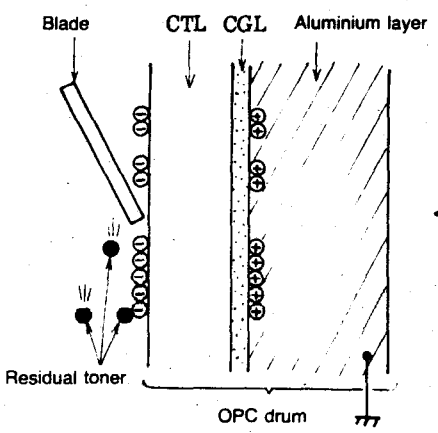
Prior to going into the copy cycle, a uniform charge is applied over the drum surface by the negative transfer corona unit. A positive charge appears in the aluminium layer.

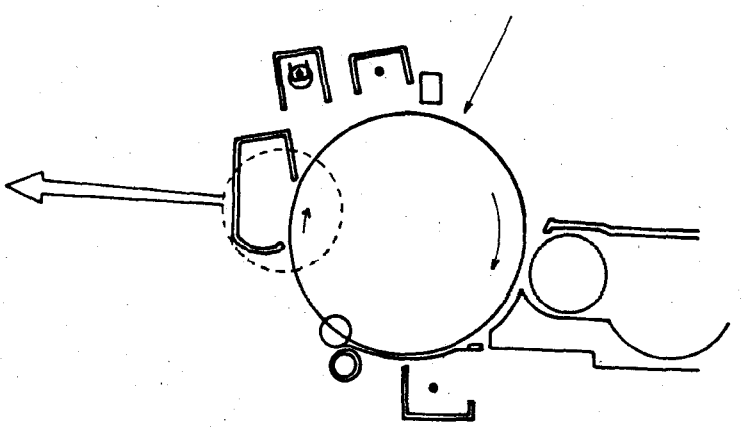




Step 2: Cleaning

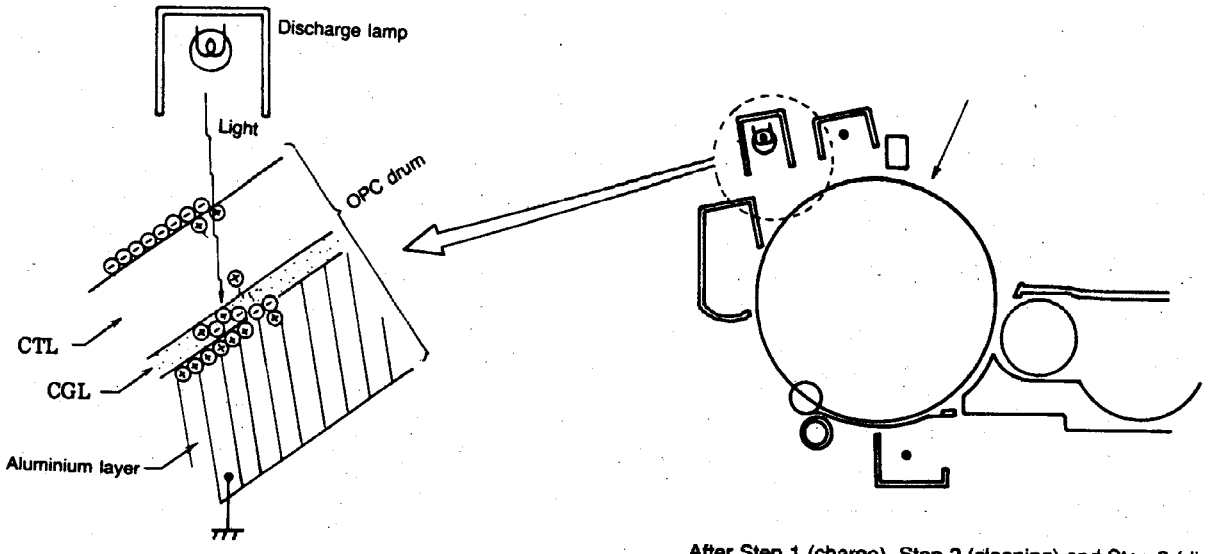
The toner remaining on the drum surface is removed by means of the cleaning blade. The waste toner is then deposited in the waste toner container using the waste toner carrying shaft.





Step 3: Discharge

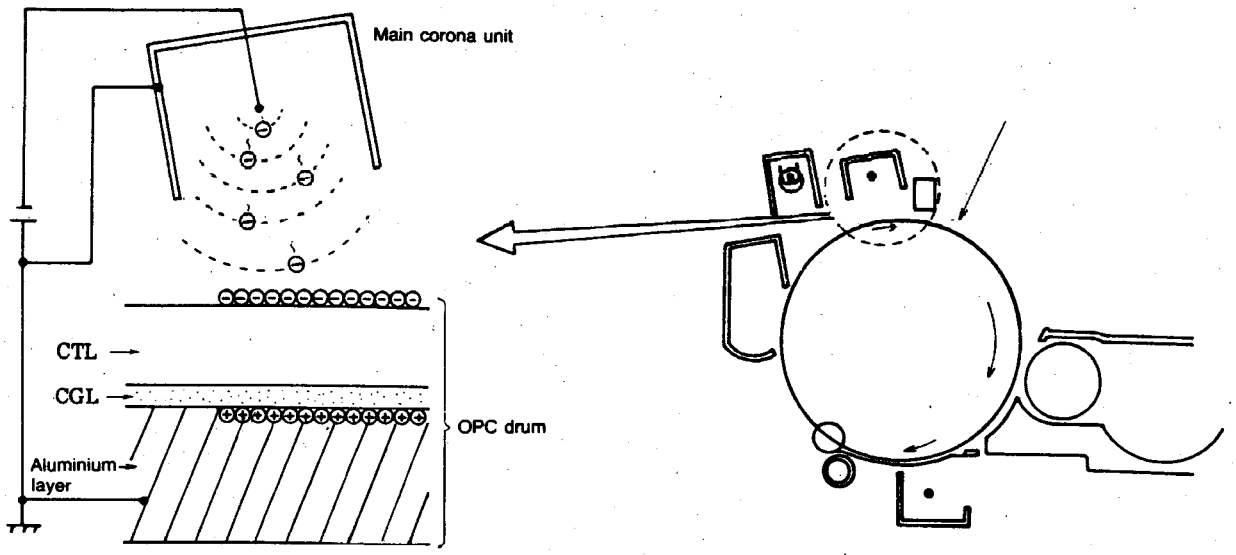
Light from the discharge lamp is projected onto the drum surface. Positive and negative charges appear in the CGL of the drum. The negative charge in the CGL moves toward the positive charge in the aluminium layer. Meanwhile, the positive charge moves toward the negative charge on the drum surface created at Step 1. The drums" surface charge is reduced to a very low potential (almost 0 volts) because of the neutralization effect, that occurs between the positive and negative charges on both the drums surface and aluminum core.



After Step 1 (charge), Step 2 (cleaning) and Step 3 (discharge), the drum surface potential becomes stable and is ready for operation.

Step 4: Charge (Main corona unit)

A negative charge is applied over the drum surface by the main corona unit. A positive charge develops in the aluminium layer.

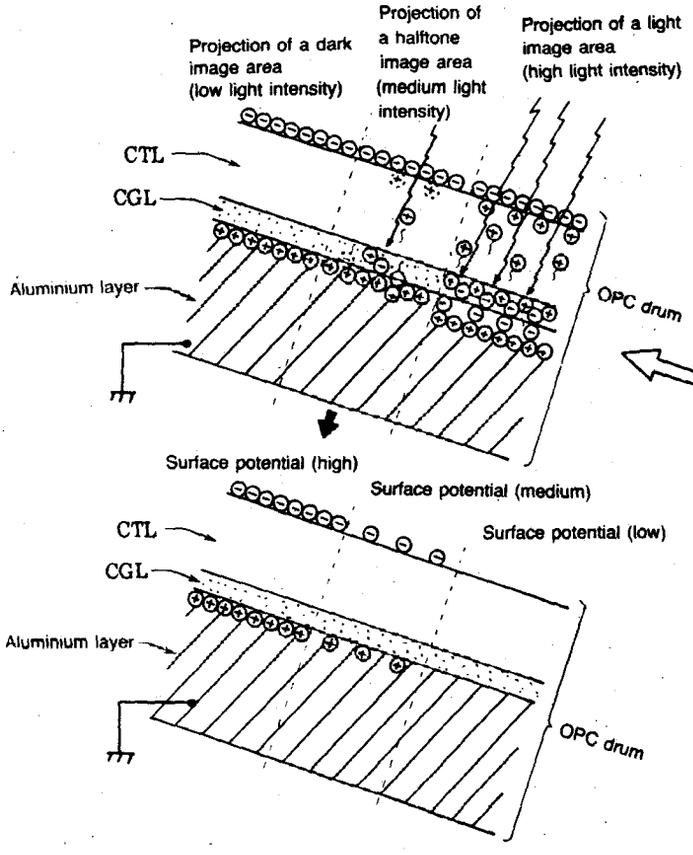


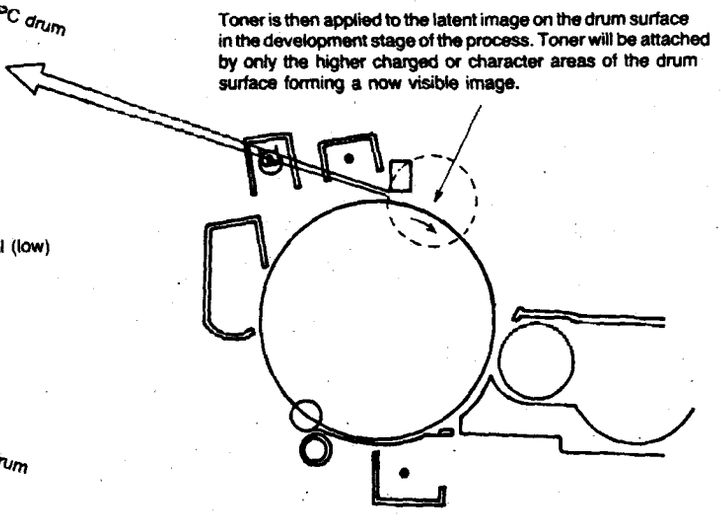
Step 5: Exposure

Light from the copy lamp is projected over the original and reflected onto the drum surface through the mirrors and lens. Since more light is reflected from light image areas of the original, the respective drum area is exposed to more intense light. On the other hand, less light is reflected from dark image areas of the original so that the respective drum area is exposed to less intense light.

Negative and positive charges appear in the CGL. The negative charge caused in the CGL advances to the positive charge in the aluminium layer produced at Step 4, and the positive charge advances to the negative charge on the drum surface. Therefore, the positive and negative charge in the aluminium layer and the drum surface where exposed to light neutralize each other and the drum surface potential drops. Since the charge in the CGL is proportionate to the density of the original, more charge is created in the CGL areas exposed to more intense light. The decrease in the drum surface potential is greater as more of the drum surface negative charge is dissipated. On the other hand, the dark image portion (less intensive light projected area on the drum surface) has less CGL charge creation, so that not so much drum surface potential decrease occurs. In this way, the electrostatic latent image is formed on the drum surface.

The dark image portion of the original reflects a less intense light back to the drum. This causes a lower charge in the corresponding areas of the CGL, which in turn causes little or no dissipation of drum surface potential.

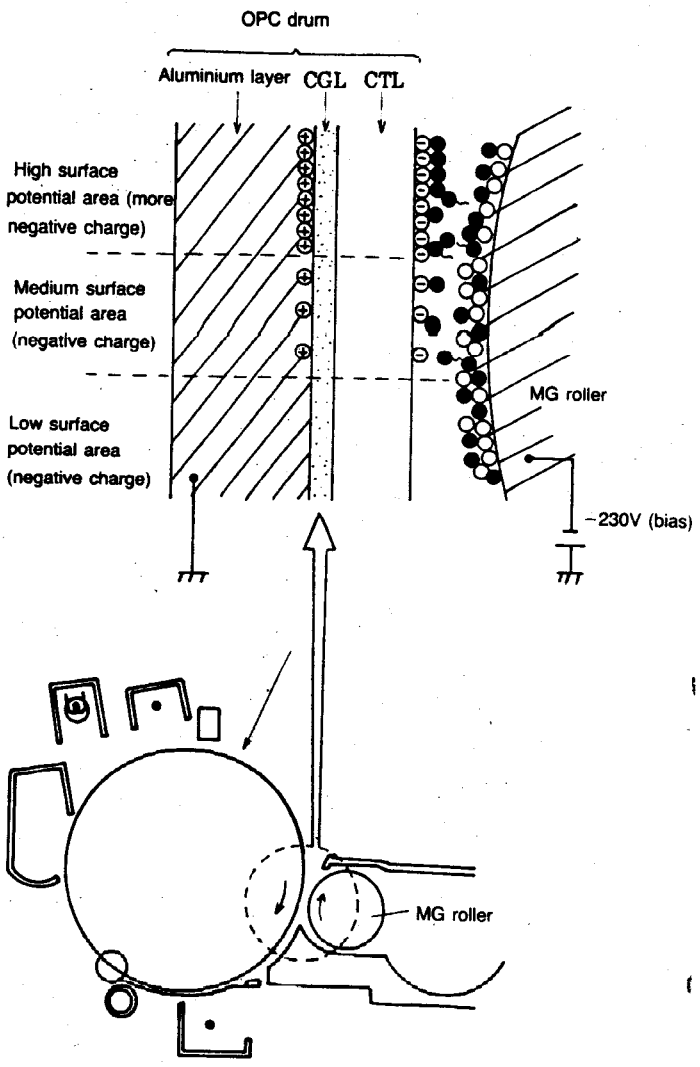



Toner is then applied to the latent image on the drum surface in the development stage of the process. Toner will be attached by only the higher charged or character areas of the drum surface forming a now visible image.

Step 6: Developing

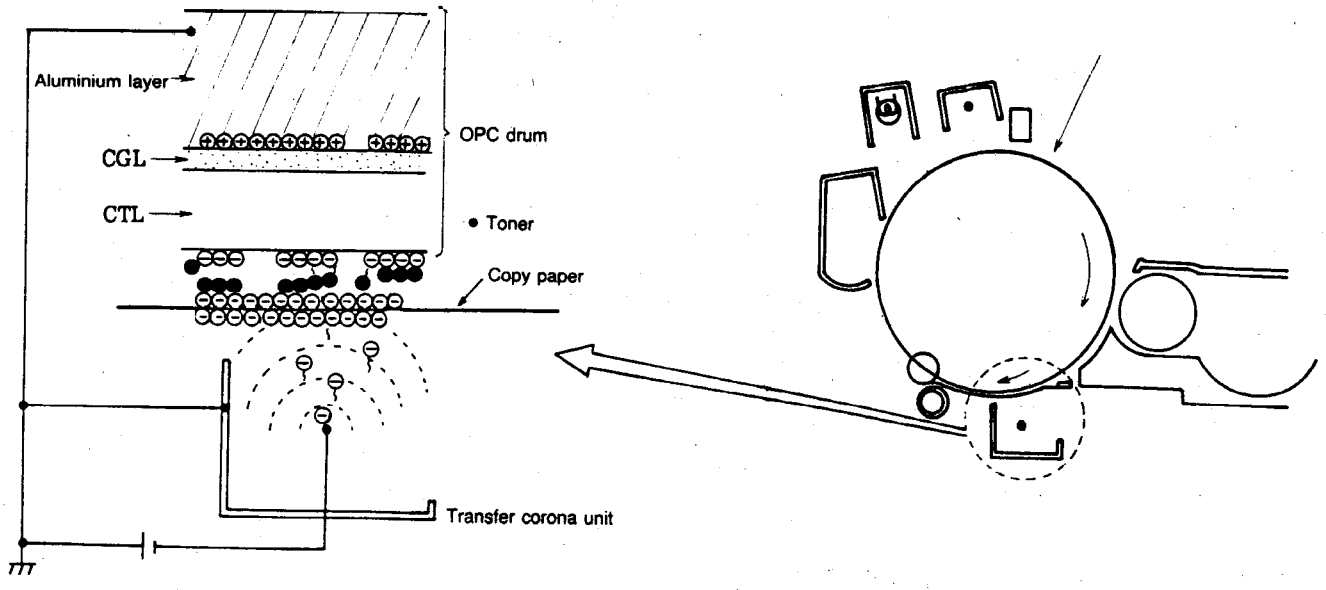
Toner is attracted over the latent image area on the drum surface to form a visible image. Toner is positively charged by friction with the carrier. The SF-7700/7750 employs two component magnetic brush developing system and toner is attracted by the negative charge on the drum surface.
Since the drum surface potential is higher in the dark image area (exposed to less intense light), more toner is therefore attracted and vice versa.

○: Carrier (magnetic particle)
●: Toner (charged positive by friction)



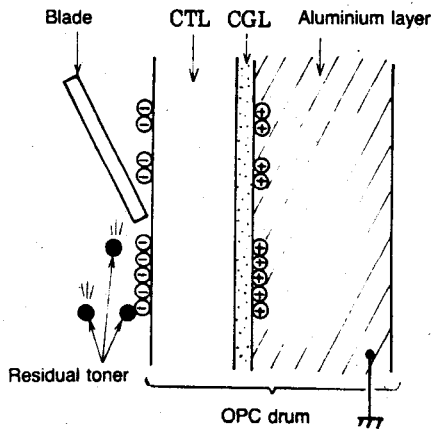
Step 7: Transfer (Transfer corona unit)

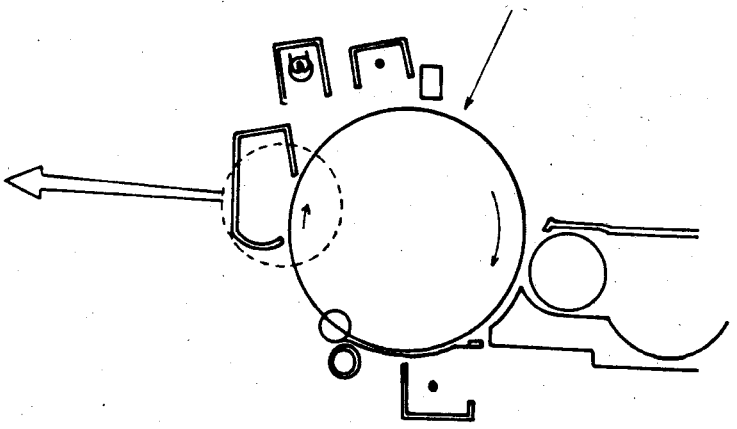
As the copy paper is charged to a higher potential than the drum surface potential by means of a negative transfer corona unit, a stronger bonding force appears between the copy paper and the toner than between the drum and the toner. This attracts the toner to the panel from the drum.
Toner transfer efficiency is between 70 to 80%, 20 to 30% remains on the drum.



Step 8: Cleaning

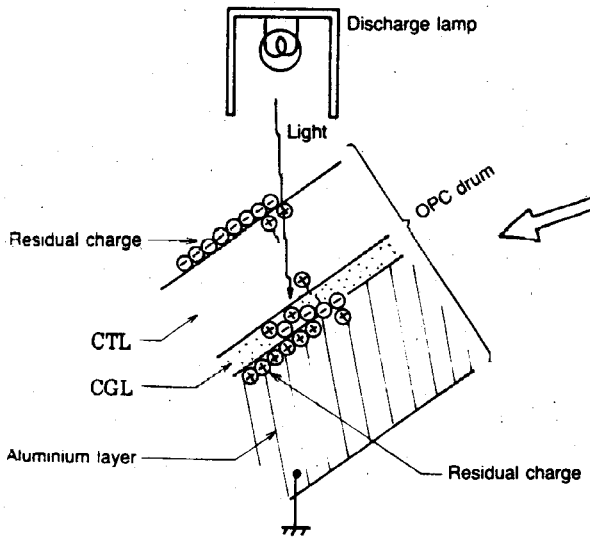
The toner remaining on the drum surface is removed by means of the cleaning blade. The waste toner is then deposited in the waste toner container using the waste toner carrying shaft.

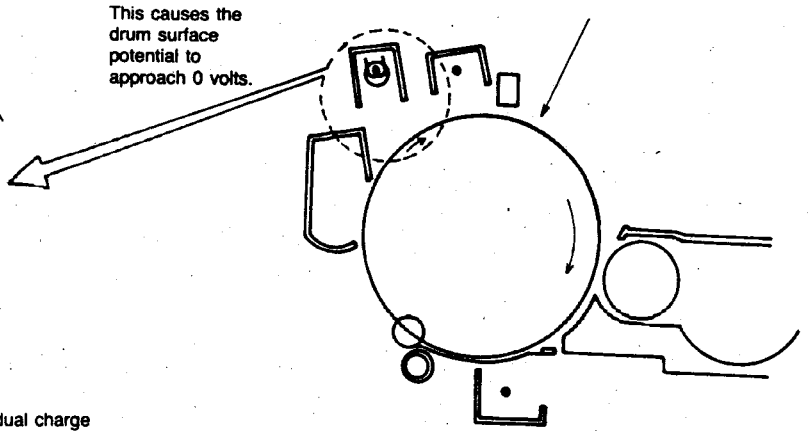




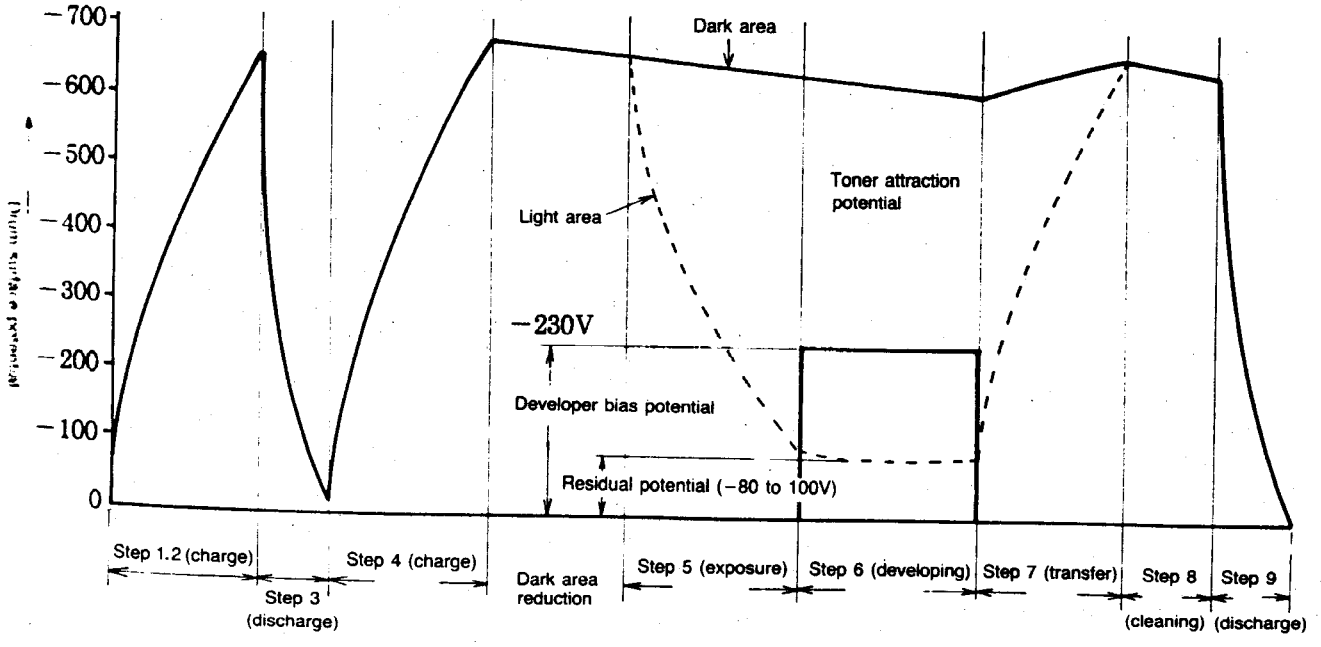
Step 9: Discharge

By exposing the drum surface with the discharge lamp, positive and negative charges appear in the CGL. The negative charge produced in the CGL advances toward the residual positive charge in the aluminium layer, while the positive charge advances in the aluminum toward the residual negative charge on the drum surface. In this way, the positive charge and the negative charge neutralize each other on the drum surface and in the aluminium layer.





3. Transition of drum surface potential



[8] PAPER FEED UNIT

1. General description

- It has a manual feed tray in addition to two cassettes.

① Manual feed tray
May be used to make a single copy only.

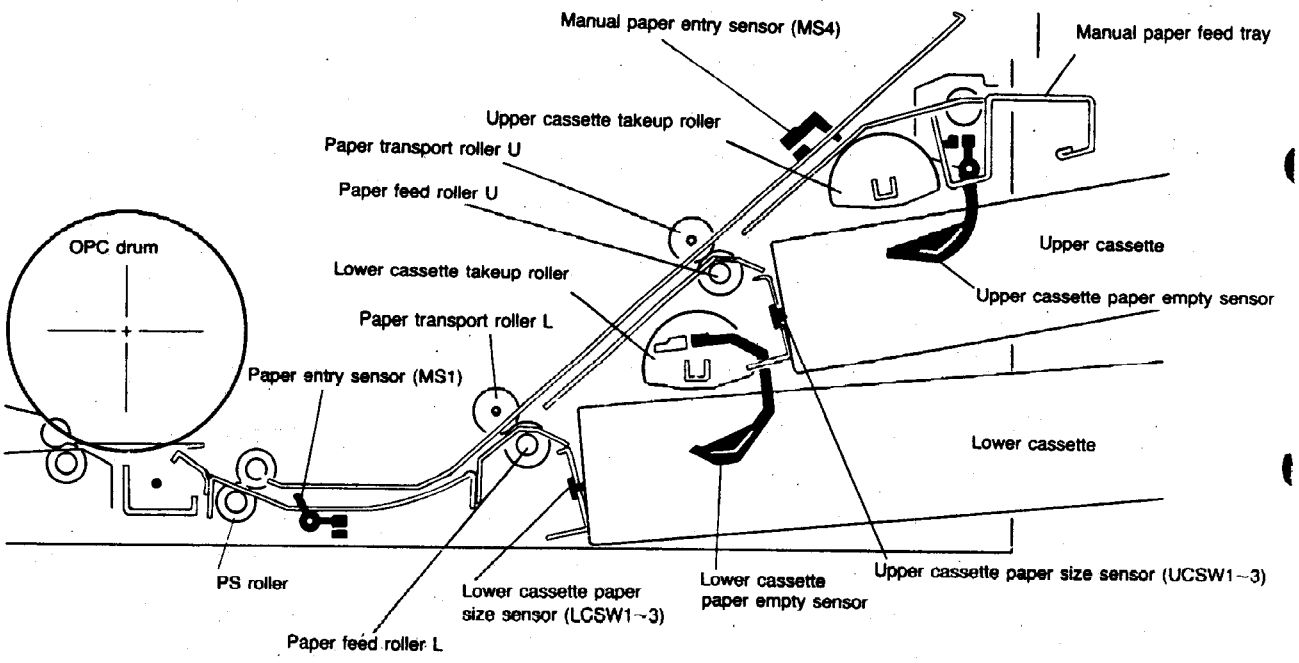
- Type of paper applicable for manual feeding: 13.8 lbs. (52g/m^2) to 27.6 lbs. (104g/m^2) for paper 8-1/2" × 11" to 11" × 17" (A6 to A3).
  27.6 lbs. (104g/m^2 to 34.1 lbs. (128 g/m^2) for paper 8-1/2" × 11" (A4 to A6).

NOTE: Special A4 paper must be fed longitudinally.

② Cassette feeding
250-sheet cassette (upper cassette)
250-sheet cassette (lower cassette)

- Type of paper applicable for cassette feeding: 14.9 lbs (56g/m^2) to 21.3 lbs. (80g/m^2)

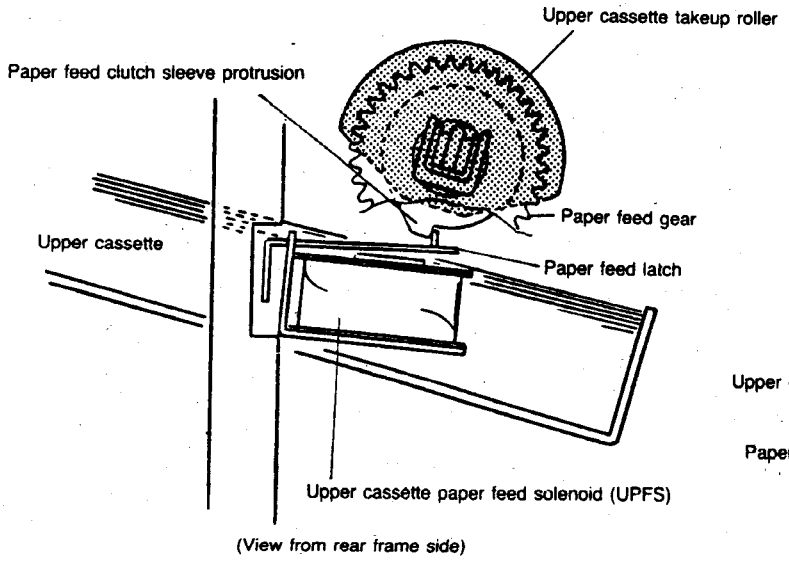
③ Paper feed unit structure



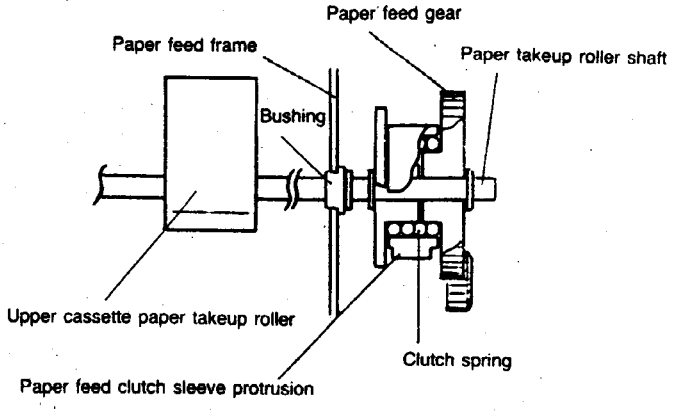
2. Cassette feed operation

A. Upper cassette feed operation

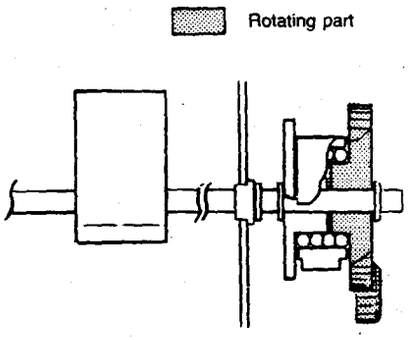
① The figure below shows the relation between the takeup roller, takeup roller clutch sleeve, and the paper feed latch, when the ready lamp is on.



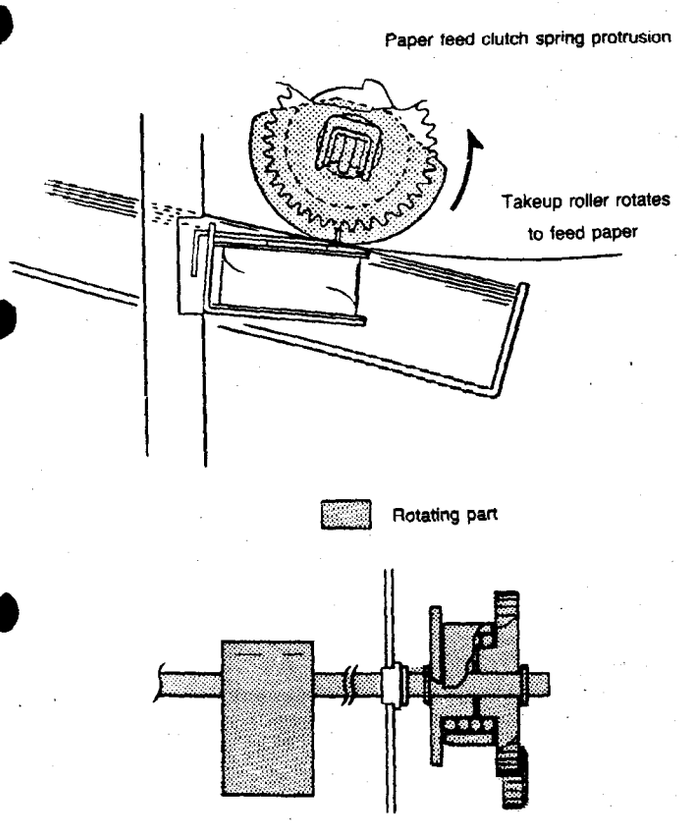
(View from rear frame side)



② In a fraction of a second after the depression of the print switch, the main motor starts to run and the gear train starts to drive. The paper feed gear also starts to run, but the takeup roller is not driven because the rotation of the gear is not conveyed to the takeup roller shaft as the protrusion on the clutch sleeve is held by the latch.

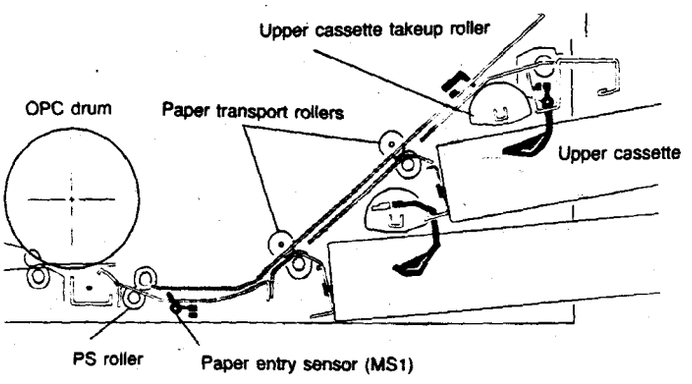


③ In 1.1 seconds after the start of the main motor, the upper paper feed solenoid (UPFS) is energized for a moment. With this, the latch disengages from the protrusion so that the gear rotation is conveyed to the takeup roller shaft to start feeding paper.

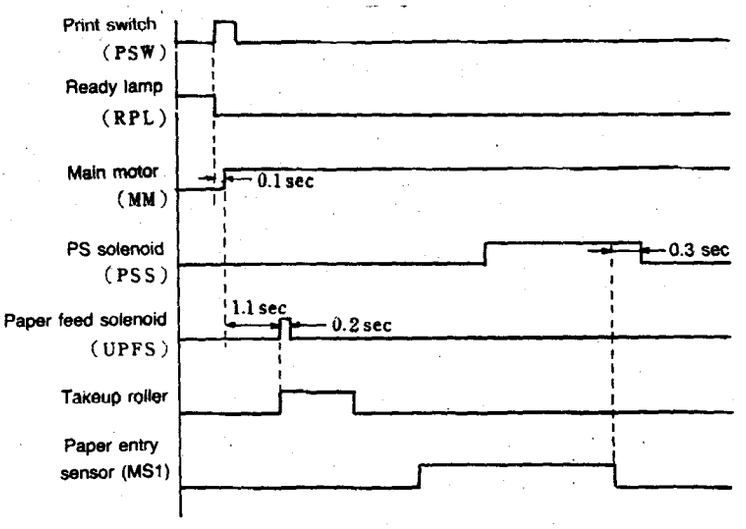


④ After the takeup roller makes a full turn, the protrusion is held by the latch again and the takeup roller rotation stops.

⑤ Meanwhile, the paper is carried into the copier by the paper feed rollers and stops at the PS rollers because the paper entry sensor (MS1) is hit by the leading edge of the passing paper. The paper is held there temporarily in order to make synchronization with the image lead edge area of the drum. While the paper is held by the PS roller, buckle is formed in the copy paper at the PS rollers as the paper feed rollers continue to rotate.

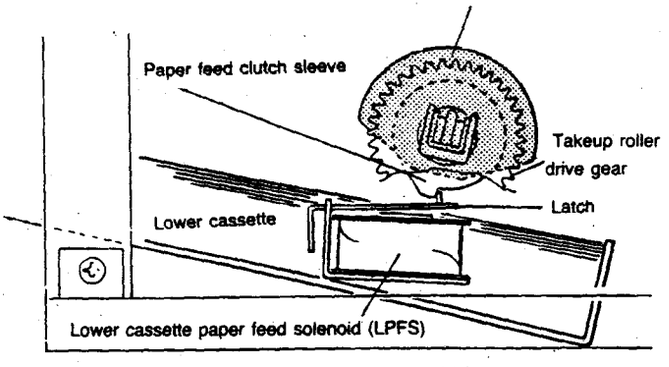


⑥ The PS roller begins to rotate when the PS solenoid (PSS) energizes, the copy paper is carried onto the transfer unit. The PS roller activation timing can be preset using test command 50. (See Copy lead edge adjustment, Optical system.)



B. Lower cassette feed operation

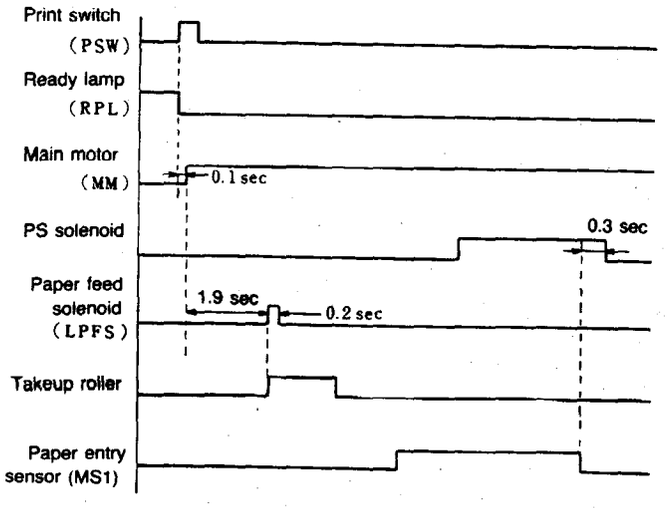
① The figure below shows the relation between the takeup roller, takeup roller clutch sleeve, and the paper feed latch, when the ready lamp is on.



(View from rear frame side)

② In a fraction of a second after the depression of the print switch, the main motor starts to run and the gear train starts to drive. The paper feed gear also starts to run, but the takeup roller is not driven because the rotation of the gear is not conveyed to the takeup roller shaft as the protrusion on the clutch sleeve is held by the latch.

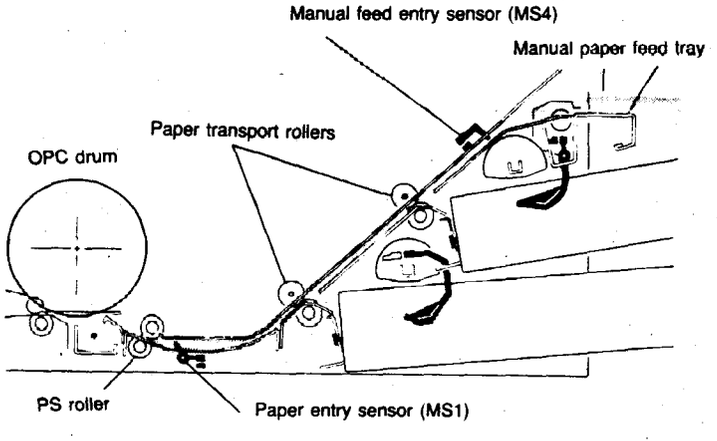
③ In 1.9 seconds after the start of the main motor, the lower paper feed solenoid (LPFS) is energized for a moment. With this, the latch disengages from the protrusion so that the gear rotation is conveyed to the takeup roller shaft to start feeding paper.
Action after this is similar as the upper cassette feed. (See A-④~⑥.

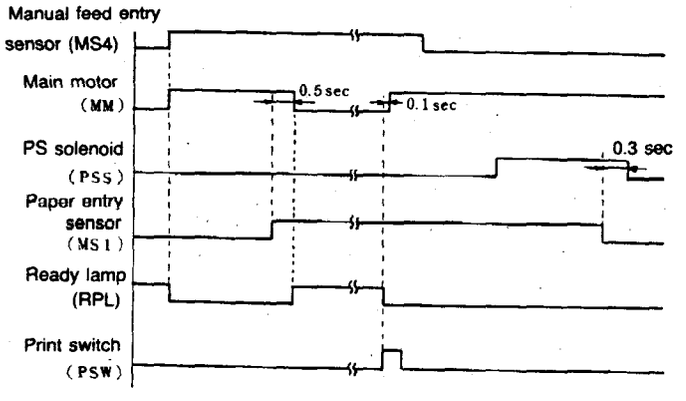


C. Manual paper feed operation

① When a copy paper is inserted in the manual feed tray, the manual paper entry sensor switch (MS4) is actuated by the lead edge of the copy paper. At the same time, the main motor and the gear train starts to run. The copy paper is fed by the paper transport rollers and stops at the PS rollers by the actuation of MS1. In 0.3 seconds after the actuation of MS1, the main motor stops and the copier goes into the ready state.

② When the print switch is depressed, the main motor starts to rotate again in 0.1 seconds later and the PS solenoid actuates when the lead edge of the image on the drum is synchronized with the copy lead edge. The copy paper is then fed further into the copier by the PS roller.

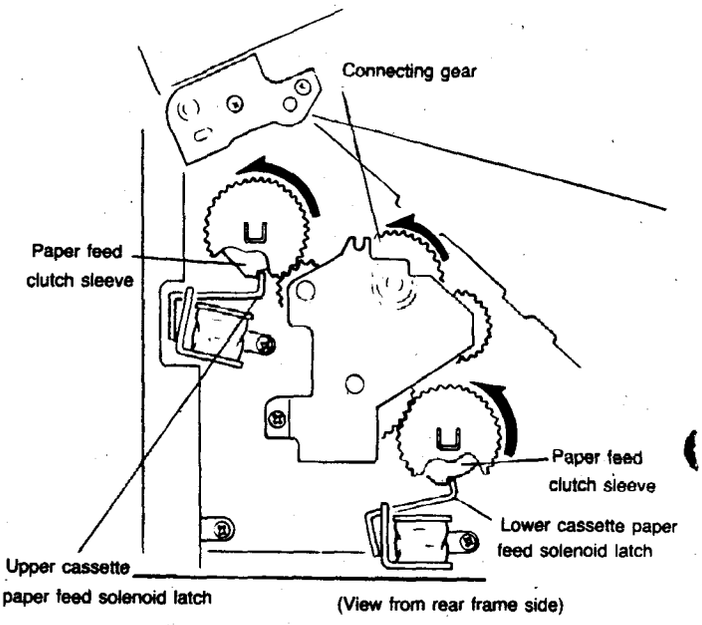


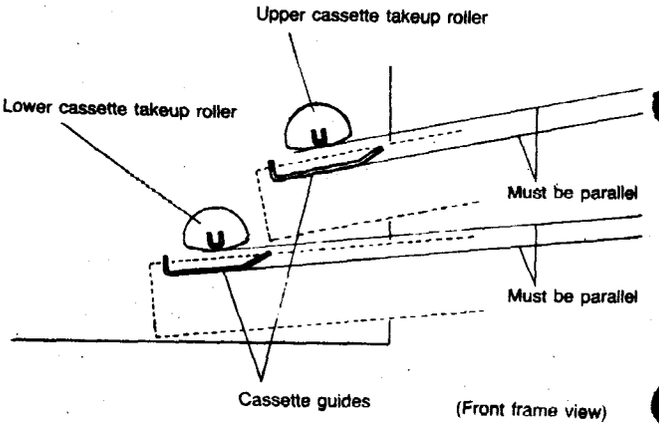


3. Adjustments

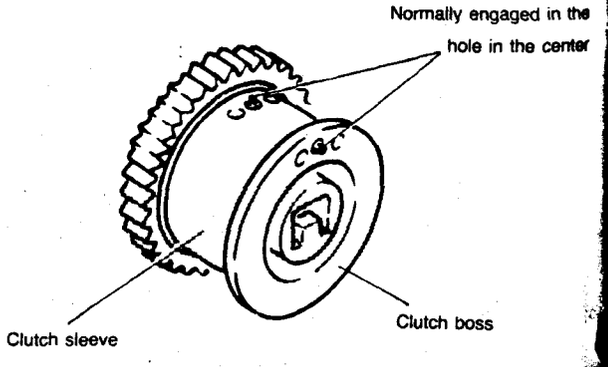
A. Takeup roller location adjustments (both cassettes)

(Check procedure)
Rotate the connecting gear in the arrow direction and make sure while the clutch sleeve is held by the latch of the upper cassette (or lower cassette) paper feed solenoid that the flat side of the roller is parallel with the cassette guide. Tolerance is ±5°.

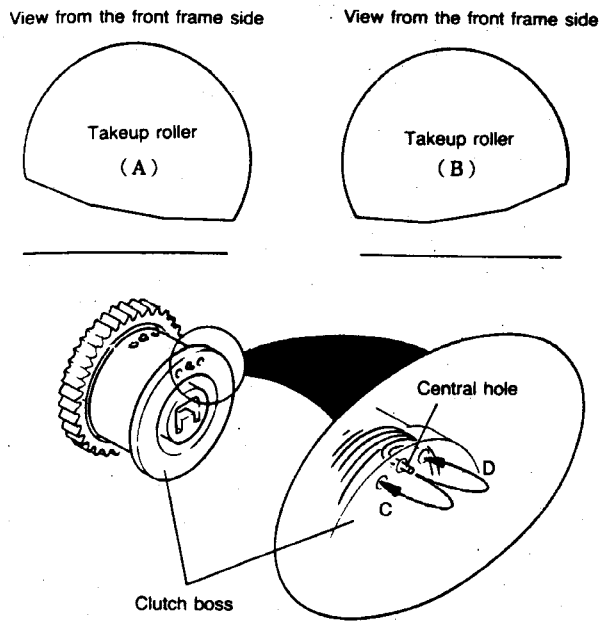




The position can be adjusted by the spring inserted in the clutch boss. Both the clutch boss and the sleeve were engaged to the hole in the center.



(Adjustment procedure)
① Check angular deviation in both takeup rollers.
② Adjust the position of the spring according to the angular deviation.

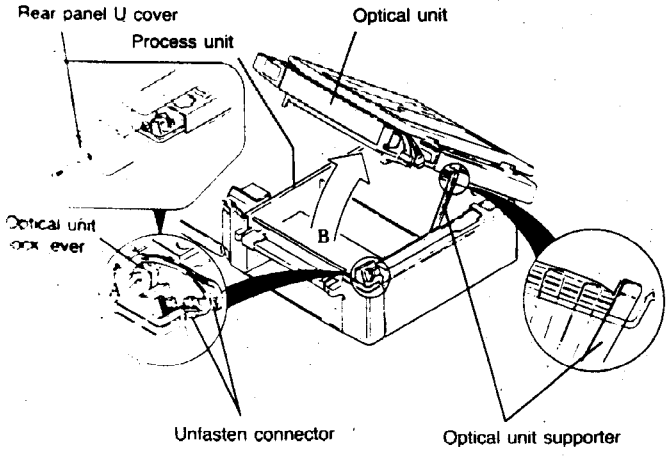


- If the takeup roller is like A in the figure, change the clutch spring to the boss hole D.
- If the takeup roller is like B in the figure, change the clutch spring to the boss hole C.
- If the adjustment is not possible, change the spring hooked position to re-adjust it.

4. Major parts replacement

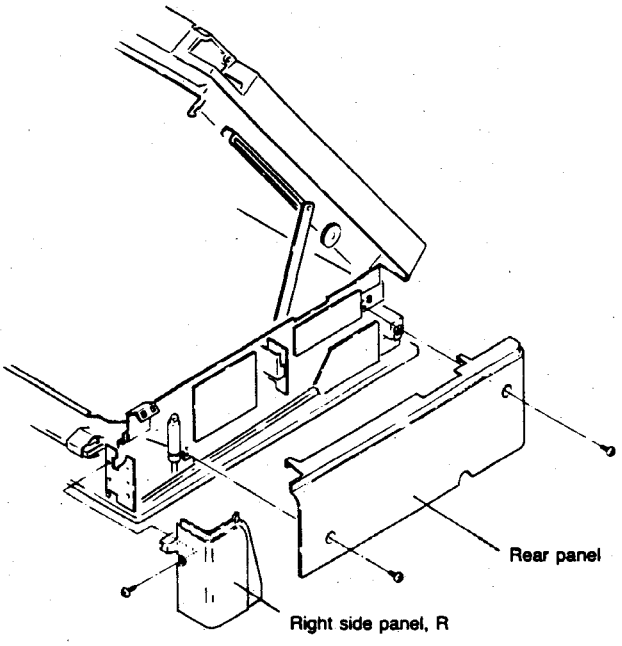
A. Removing the upper cassette takeup roller

① Open the front panel.
② Remove the rear panel upper U cover screw and remove the U cover.

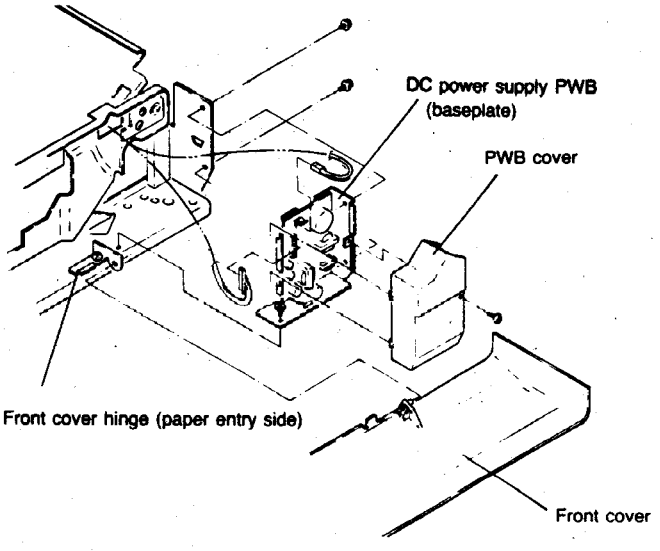


③ Unfasten two connectors between the optical unit and the process unit and unlock the optical unit lock lever (move the lever in the arrow direction A).
④ Open up the optical unit and support it with the supporter.

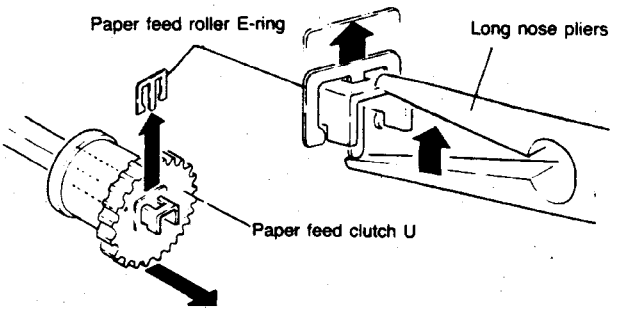
⑤ Remove the screws that hold the rear panel and right side panel R and remove the panels.



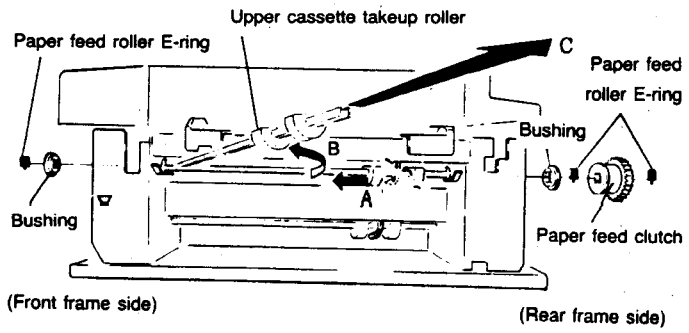
⑥ Remove the front frame side cover of the DC power supply PWB.
⑦ Remove the developer unit. Loosen the front cover holding hinge (paper entry side) and remove the front cover.
⑧ Remove three screws that hold the DC power supply PWB baseplate and remove the connectors from the PWB. Then, remove the PWB baseplate.



⑨ Remove the optical unit supporter and close the optical unit.
⑩ Push up the clam shell open lever and open the frames.
⑪ Remove the E-ring of the paper feed clutch U and remove the paper feed clutch U.



⑫ Remove the E-rings and the bushings from both frame sides of the upper cassette takeup roller shaft.
⑬ Move the shaft towards the front frame side (arrowhead A) and move it through the slit on the rear frame side. Then, take it out of the paper entry side (arrowhead B to C).

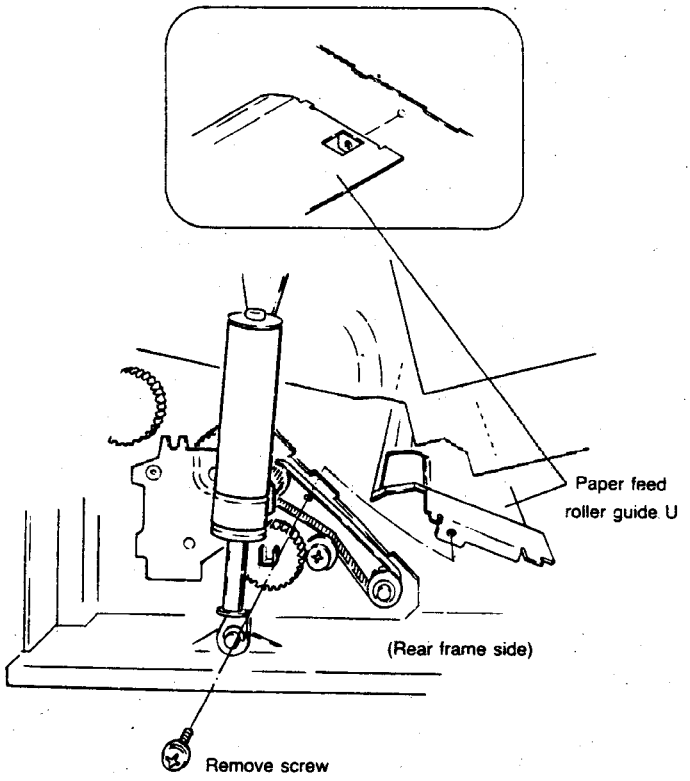


B. Removing the lower cassette takeup roller

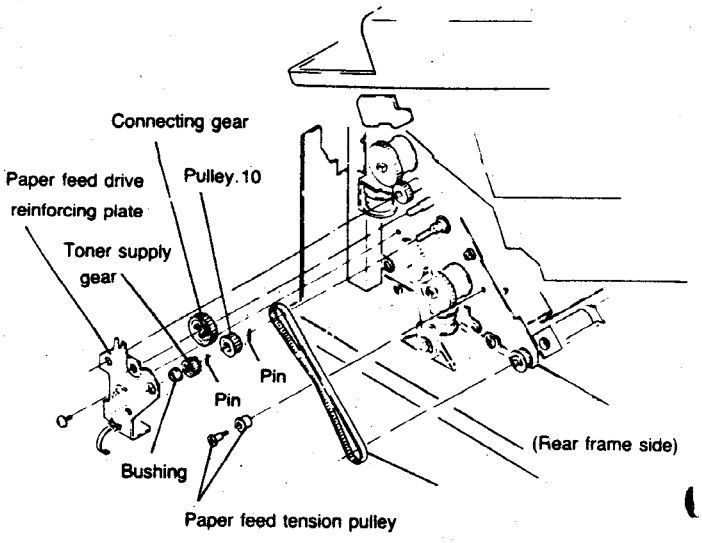
① Remove the rear panel, right side panel R, and the DC power supply PWB, in reference to A-①-⑨.
② Push up the clam shell open lever and open the frames.
③ Remove the E-ring of the paper feed clutch L and remove the paper feed clutch L.
④ Remove the E-rings and the bushings from both frame sides of the lower cassette takeup roller shaft.
⑤ Move the shaft towards the front frame side (arrowhead A) and move it through the slit on the rear frame side. Then, take it out of the paper entry side.
See figures for the paper takeup roller U of A.

C. Removing the paper feed roller U

① Remove the rear panel and the right side panel R, in reference to A-①~⑤.
② Remove the optical unit supporter and close the optical unit.
③ Push up the clam shell open lever and open the frames.
④ Remove the paper feed guide U screw on the rear frame side and remove the paper feed guide.

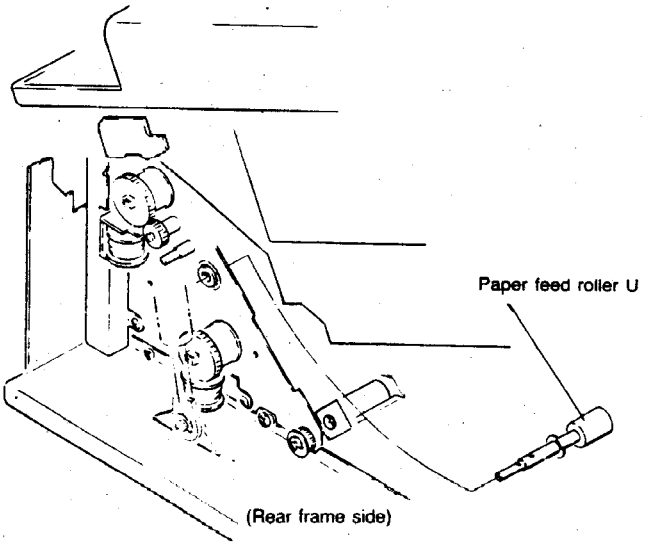


⑤ Loosen the snap band on the paper feed drive reinforcing plate and remove the leads. Remove the two paper feed drive reinforcing plate screws. Remove the paper feed drive reinforcing plate.
⑥ Remove the paper feed tension pulley.
⑦ Remove the connecting gear, toner supply gear, pulley 10, and the paper feed belt.



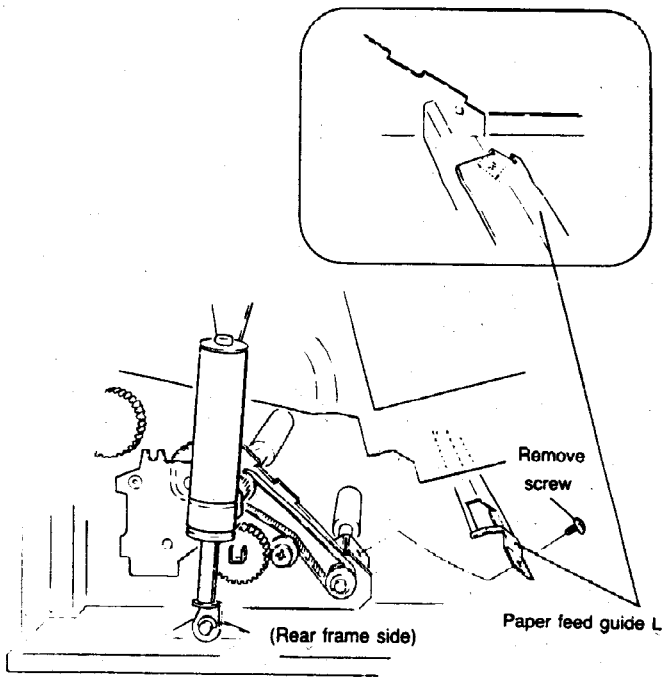
NOTE: Do not forget to insert the pin back in the toner supply gear and pulley 10 after mounting them on the paper feed roller U shaft.

⑧ Remove the paper feed roller U to the front frame side.

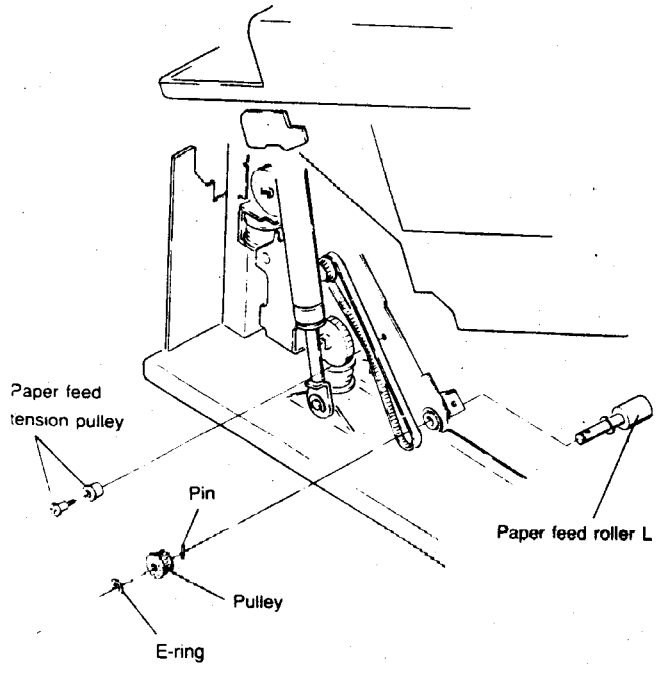


D. Removing the paper feed roller L

① Remove the rear panel and the right side panel R, in reference to A-①~⑤.
② Remove the optical unit supporter and close the optical unit.
③ Push up the clam shell open lever and open the frames.
④ Remove the paper transport guide L screw on the rear frame side and remove the paper transport guide.

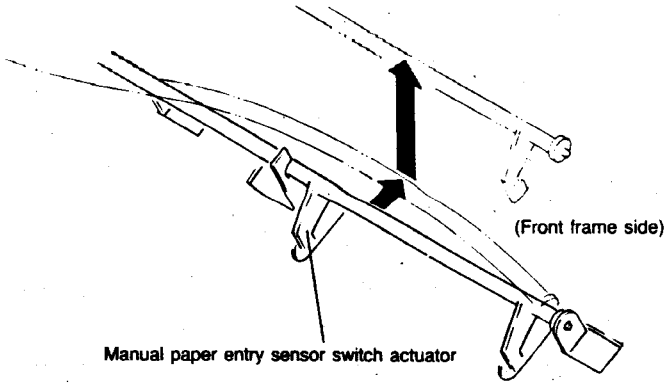


⑤ Remove the paper feed tension pulley.
⑥ Remove the E-ring on the rear frame side paper feed roller L shaft and remove pulley 10.
NOTE: Do not forget to insert the pin back in the toner supply gear and pulley 10 after mounting them on the paper feed roller L shaft.
⑦ Move the paper feed roller L towards the front frame side and remove it.

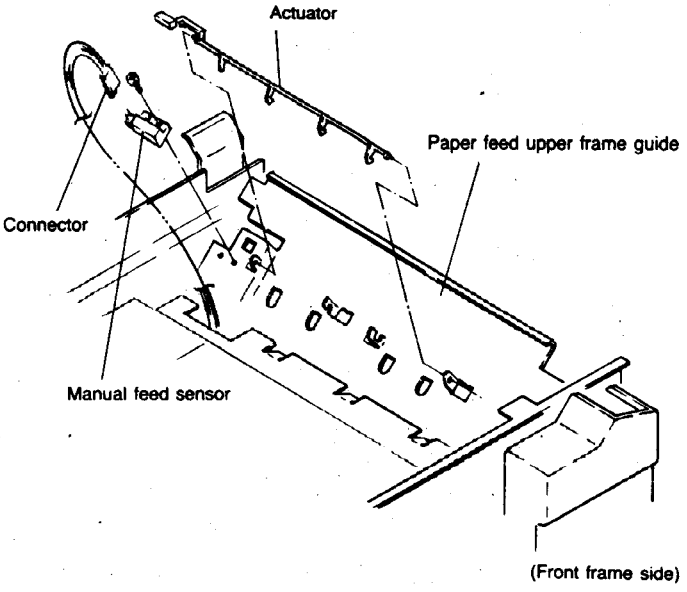


E. Removing the manual feed paper entry sensor switch

① Open the optical unit, in reference to A-①~④.
② Bend the manual feed paper entry sensor switch actuator on the paper feed upper frame guide (see figure) and remove it from the front frame side.

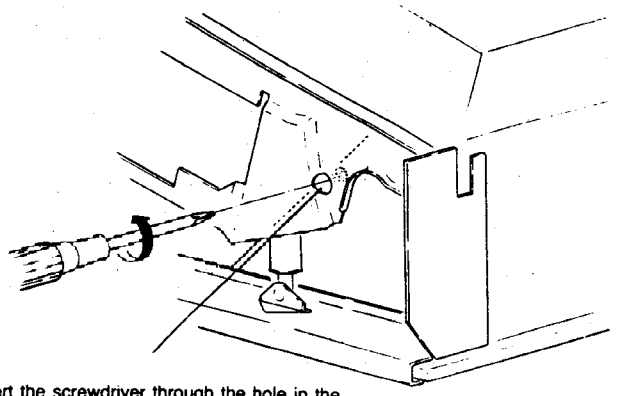


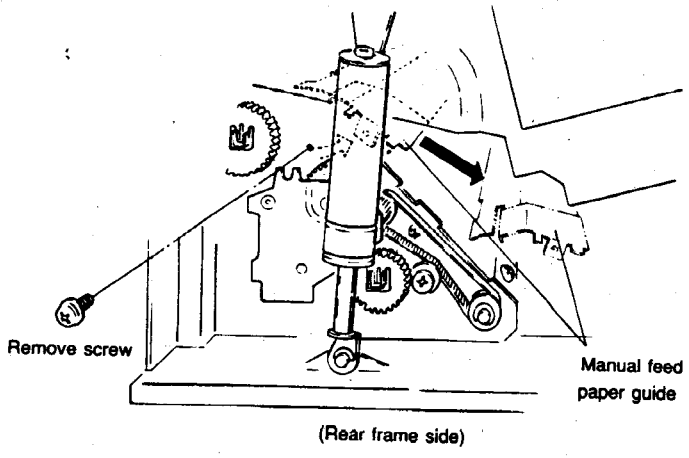
③ Unfasten the manual feed entry sensor switch connector and remove the switch holding screw. Now, replace the switch with the new one.



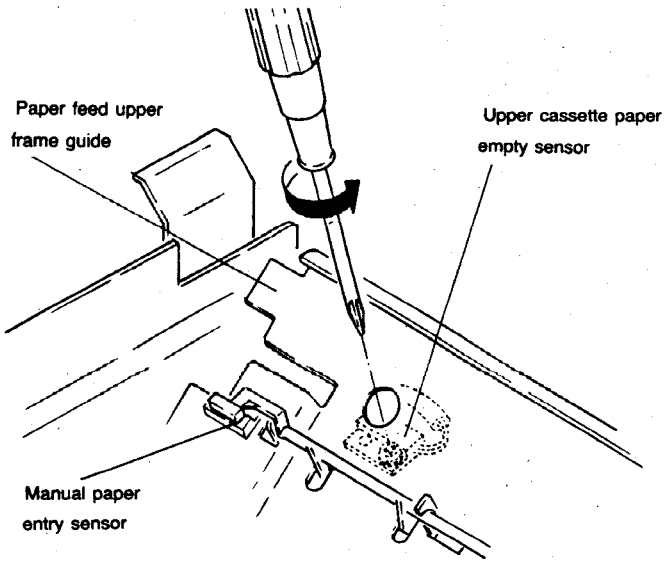
F. Removing the upper cassette paper empty switch

① Remove the rear panel, right side panel R, and the DC power supply PWB, in reference to A-①~⑨.
② Push up the clam shell open lever and open the frames.
③ Remove the manual paper feed guide screw (one on both frame sides) and remove the manual paper feed guide.

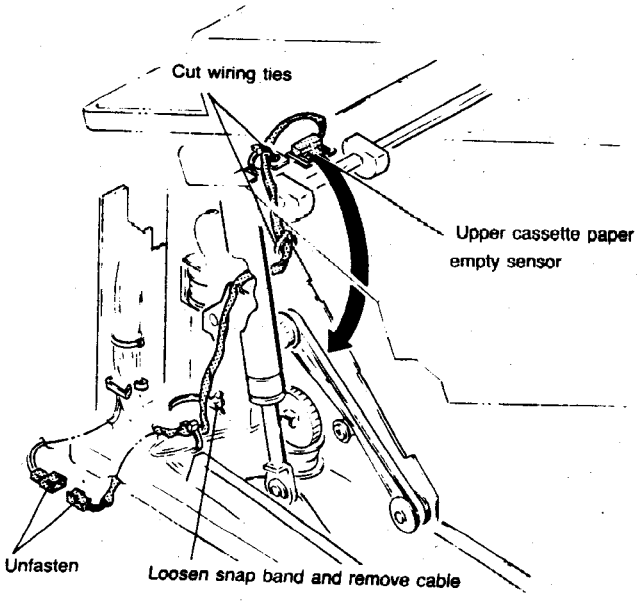




④ Close the clam shell.
⑤ Open the optical unit and support it with the supporter.
⑥ Insert the screwdriver through the hole in the paper feed upper frame guide and remove the screw that holds the upper cassette paper empty switch.

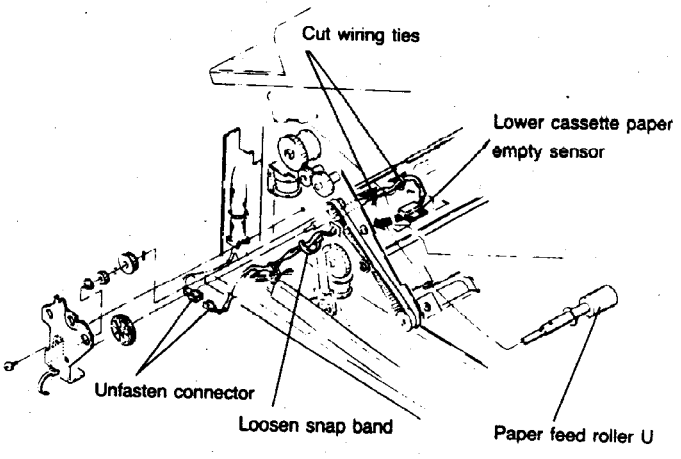


⑦ Remove the optical unit supporter, close the optical unit, and open the clam shell mechanism.
⑧ Cut the upper cassette paper empty switch lead wiring tie at two locations and remove the wiring tie on the paper feed reinforcing plate. Unfasten the lead wire connector and remove the paper empty switch.



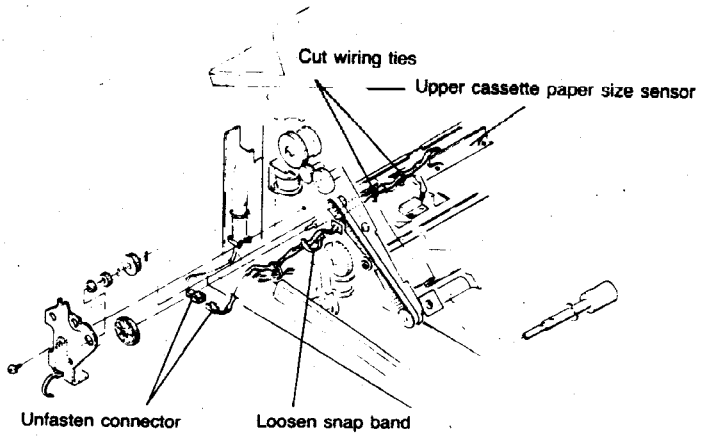
G. Removing the lower cassette paper empty switch

① Remove the rear panel and right side panel R, in reference to A-①~⑤.
② Remove the optical unit supporter and close the optical unit.
③ Push up the clam shell open lever and open the frames.
④ Remove the paper feed roller U, in reference to C-④~⑧.
⑤ Remove the lower cassette paper empty switch holding screw.
⑥ Cut the lower cassette paper empty switch lead wiring tie at two locations and remove the wiring tie on the paper feed reinforcing plate. Unfasten the lead wire connector and remove the paper empty switch.

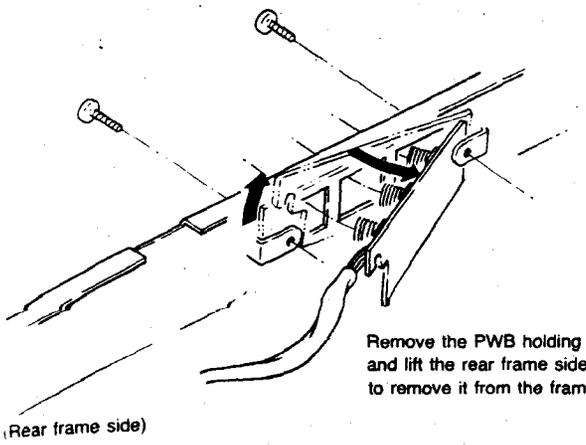


H. Removing the upper cassette paper size detect PWB

① Remove the rear panel and right side panel R, in reference to A-①~⑤.
② Remove the optical unit supporter and close the optical unit.
③ Push up the clam shell open lever and open the frames.
④ Remove the paper feed roller U, in reference to C-④~⑧.
⑤ Cut the upper cassette paper empty switch lead wiring tie at two locations and remove the wiring tie on the back of the paper feed reinforcing plate. Unfasten the lead wire connector.

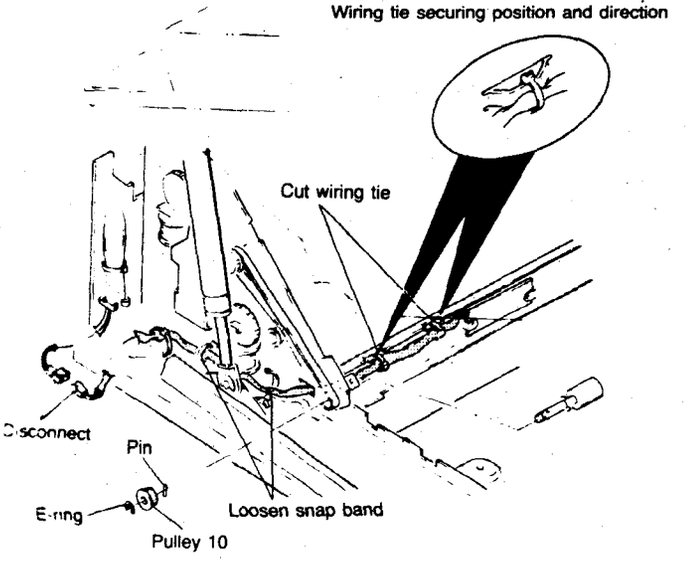


⑥ Remove the two sensor PWB holding screws from the paper entry side and remove the PWB as shown in the figure.



I. Removing the lower cassette paper size detect PWB

① Remove the rear panel and right side panel R, in reference to A-①~⑤.
② Remove the optical unit supporter and close the optical unit.
③ Push up the clam shell open lever and open the frames.
④ Remove the paper feed roller L, in reference to D-④~⑦.
⑤ Cut the lower cassette paper empty switch lead securing wiring tie at two locations and remove another wiring tie on the paper feed reinforcing plate. Unfasten the lead wire connector.



⑥ Remove the two sensor PWB holding screws from the paper entry side and remove the PWB in the same manner as removing the upper cassette paper size detect PWB as shown in the figure.

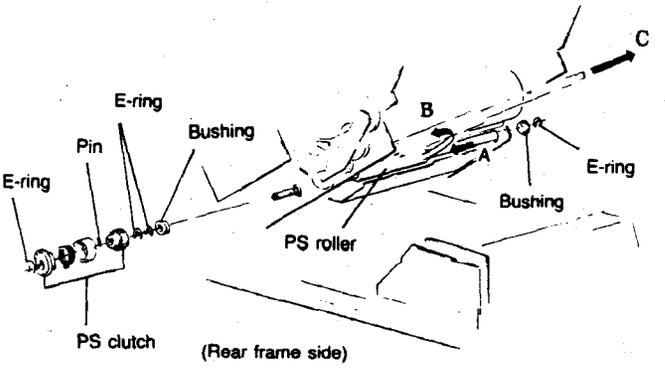
J. Removing the upper paper stop roller

① Remove the rear panel and right side panel R, in reference to A-①~⑤.
② Remove the optical unit supporter and close the optical unit.
③ Push up the clam shell open lever and open the frames.
④ Remove the paper stop roller E-ring on the rear frame side and remove the paper stop clutch.

NOTE: The paper stop clutch is held by a pin, it has to be replaced when re-assembling.

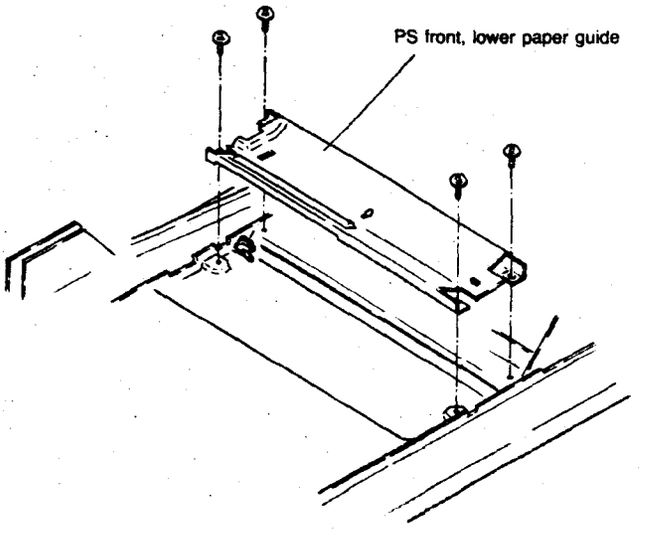
⑤ Remove two E-rings on the rear frame side of the PS roller, bushing, front frame side E-ring, and the bushing.

⑥ Move the paper stop roller shaft towards the rear frame side (arrowhead A) and move the shaft through the hole on the front frame side. Remove the shaft from the paper exit side. (arrow head B to C)

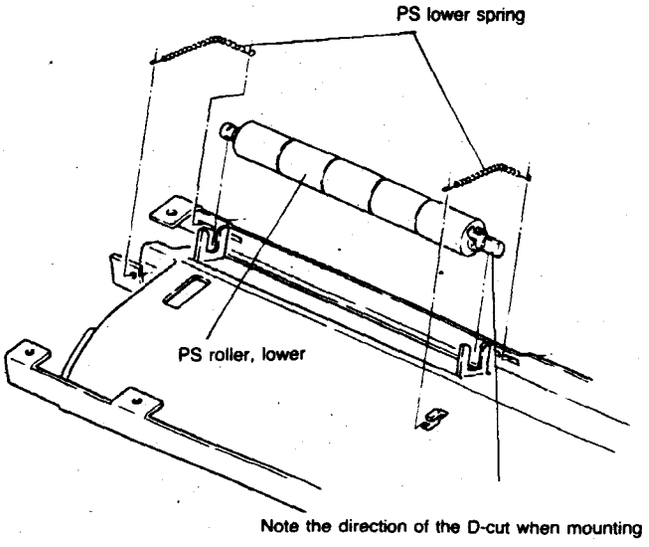


K. Removing the lower paper stop roller

① Push up the clam shell open lever and open the frames.
② Remove the four screws that secure the paper stopper front, lower paper guide and remove it.



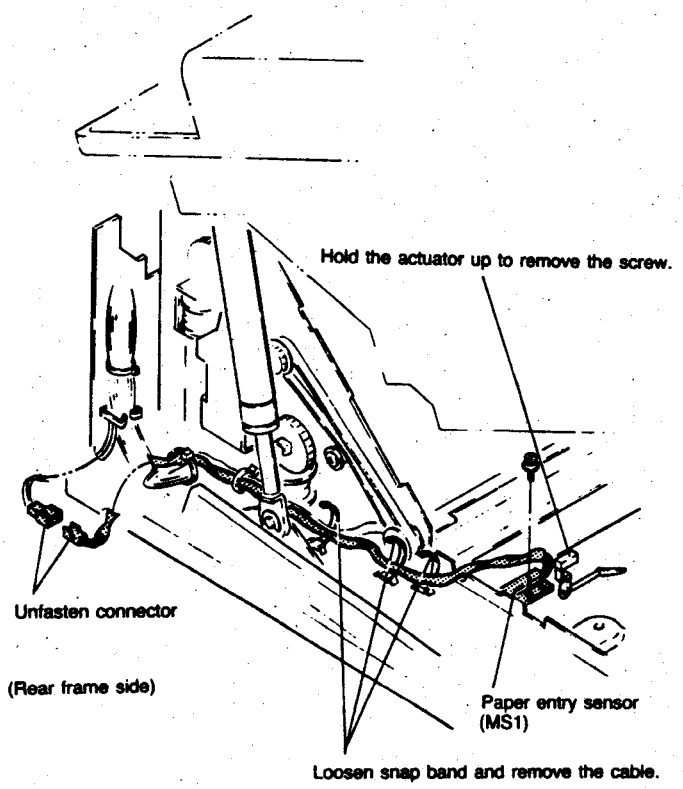
③ Turn over the paper stop front, lower paper guide and remove the two paper stop lower springs. Remove the paper stop roller shaft.



NOTE: The D-cut portion of the shaft must face in the direction shown in the figure, when inserting the lower paper stop roller.

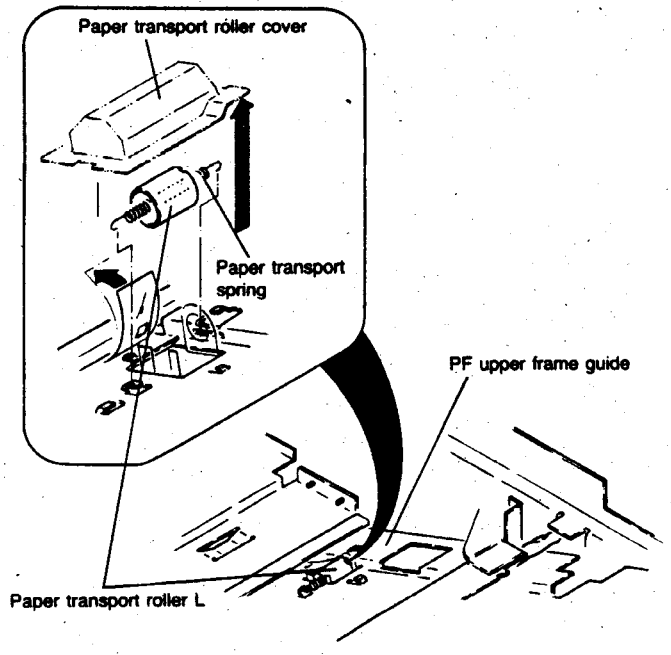
L. Removing the paper entry sensor switch (MS1)

① Push up the clam shell open lever and open the frames.
② Remove the paper stopper front, and lower paper guide.
③ Remove the paper entry sensor switch screw and cut three snap bands that hold the switch leads. Unfasten the connector and replace the paper entry sensor switch.

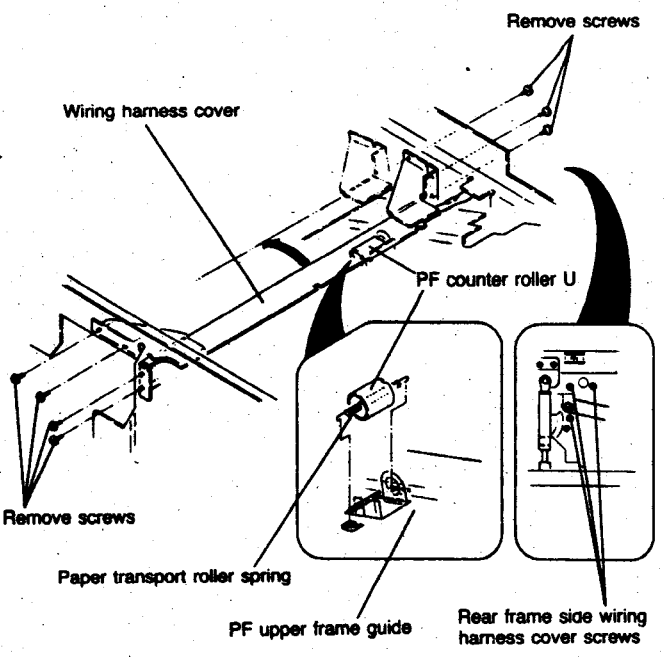

Hold the actuator up to remove the screw.
Unfasten connector
(Rear frame side)
Paper entry sensor (MS1)
Loosen snap band and remove the cable.

M. Removing the paper transport roller

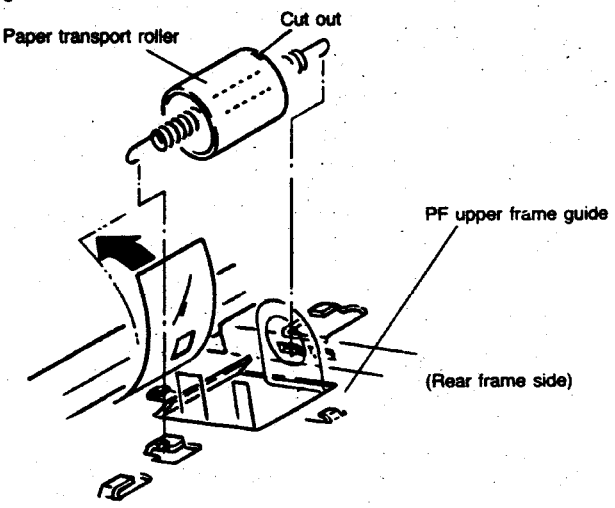
(Paper transport roller L)
① Open the optical unit.
② Remove the paper transport roller cover and remove the paper transport roller spring from the PF upper frame guide, then remove the paper transport roller L.



(Paper transport roller U)
① Open the optical unit.
② Remove the rear panel and right side panel R.
③ Remove the front frame side DC power supply PWB, in reference to A-⑥~⑧.
④ In order to provide a clearance to remove the paper transport roller U, remove seven wiring harness cover screws and move the wiring harness cover to the paper exit side (arrowhead).
⑤ Remove the paper transport roller spring from the PF upper frame guide and remove the paper transport roller U.



(Precautions in installing the paper transport roller)
When installing the paper transport roller, the cut out in the paper transport roller must be on the rear frame side (see figure below). If it is installed the opposite way, it may cause an irregular noise generation.



[9] HIGH VOLTAGE UNITS

1. General description

There are two coronas used in the copier; the main, and transfer, corona units. The main corona applies a uniform negative charge to the drum surface. The transfer corona is used to transfer the toner from the drum onto the copy paper by applying a negative charge from the back of the copy paper.

2. High voltage units

(1) Main high voltage unit (MHVG)

DC output = −6.0KVDC, 640μA
(DCD current = −22.5 ±1.0μA, difference between front and rear = 2μA, max. 1μA,

(2) Transfer high voltage unit (THVG)

DC output = ~~−6.0KVDC, 800μA~~ 5.78KVDC 625μA.
(DCD current = −14 ±1.0μA, difference between front and rear = ~~4μA~~, max.
2μA

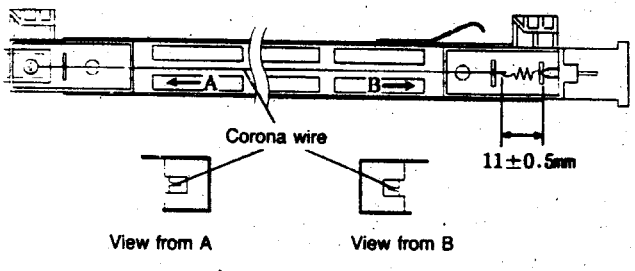
3. Discharge lamp

The discharge lamp is used to remove residual charge on the drum.

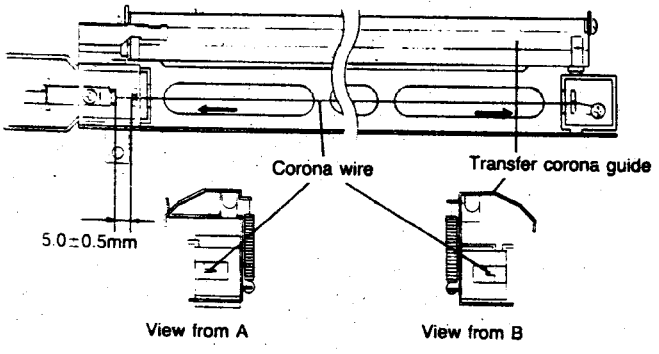
4. Corona wire replacement

Refer to the figure below for replacement of the corona wire.

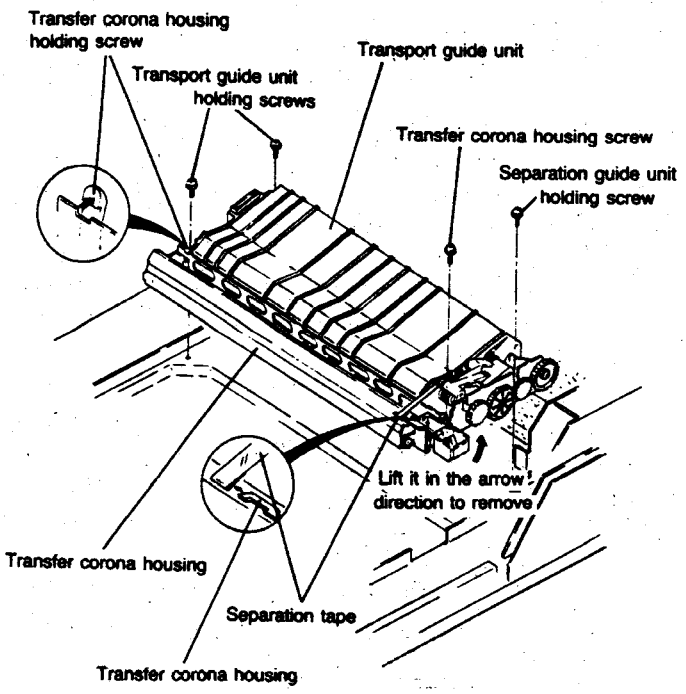
(1) Main corona unit



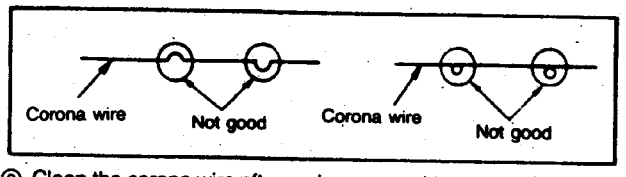
(2) Transfer corona unit



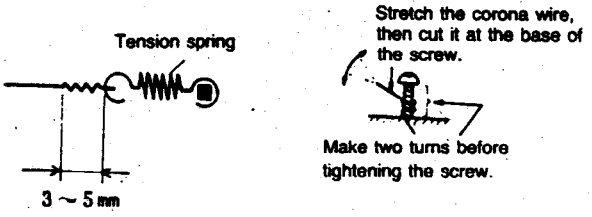
(Transfer corona removal)
① Remove three transport guide screws and one transfer corona screw, and remove the transport guide unit from the copier.
② Remove the separation tape from the transfer corona unit.
③ Unhook the transfer corona housing at two locations and remove the transport unit by lifting the transfer corona housing in the arrow direction.


Transfer corona housing holding screw
Transport guide unit holding screws
Transport guide unit
Transfer corona housing screw
Separation guide unit holding screw
Lift it in the arrow direction to remove
Transfer corona housing
Separation tape
Transfer corona housing

Precautions when replacing the corona wires.
① The corona wire must not be twisted or kinked.



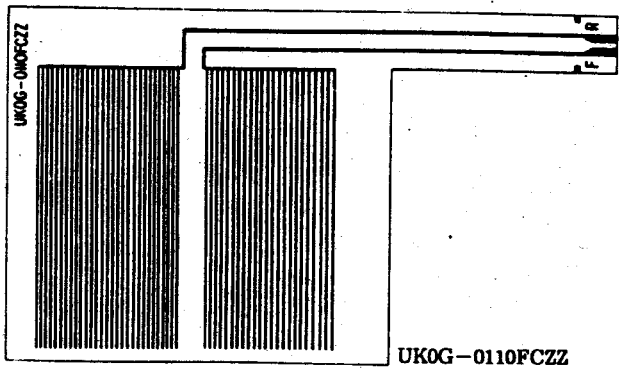
② Clean the corona wire after replacement with isopropanol alcohol only.
③ Wipe dry after cleaning.
④ Use the 70 micron corona wire (DWIR0466CSZZ).


Tension spring
3 ~ 5 mm
Stretch the corona wire, then cut it at the base of the screw.
Make two turns before tightening the screw.

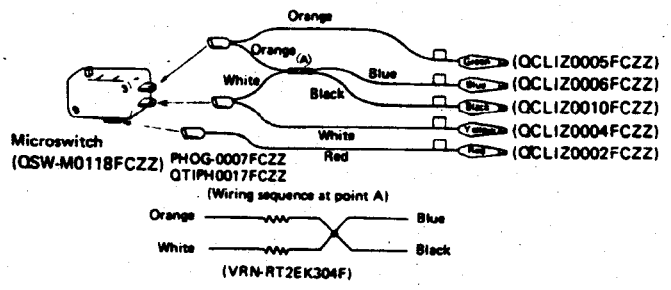
5. High voltage unit output adjustments (DCD).

(1) Tools required:

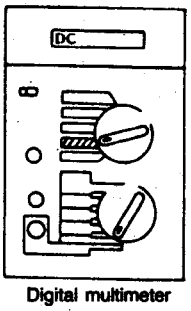
① DCD test sheet (UKOG-guide 0110FCZZ)



② DCD test sheet harness (DHAI−0304FCZZ).



③ Digital multimeter (or micro ammeter).
NOTE: The meter must have a measuring range of 0 to 100μA with a tolerance of ±1%.



Digital multimeter
(UKOGE0019FCZZ)

(2)The high voltage unit must be adjusted for any one of the following reasons:

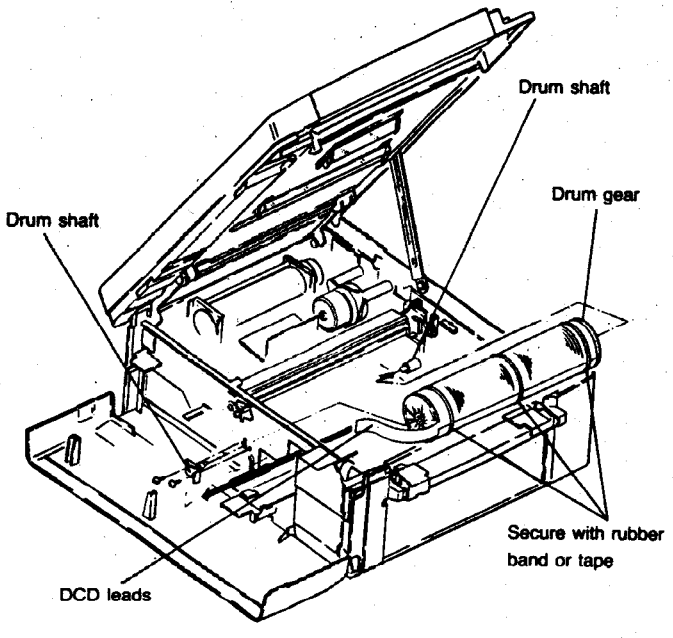
① After replacement of the high voltage unit.
② After replacement of the main or transfer corona units.

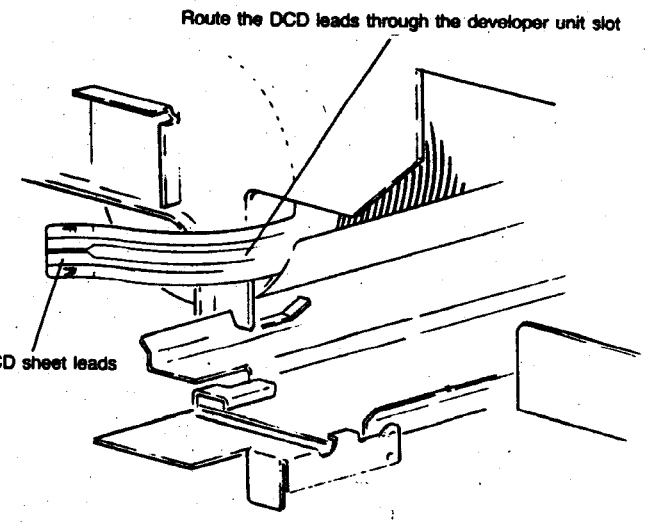
(3) Corona output adjustment procedures:

NOTE: If the MHVG is adjusted first, the output of the THVG may be higher than its typical value. To avoid this, always adjust the THVG before adjusting the MHVG.

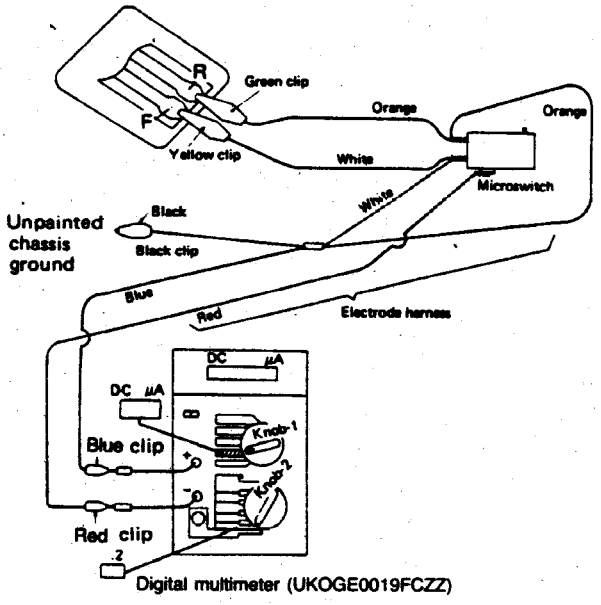
a. Transfer corona output adjustment.

① Remove the developer unit, blank lamp unit, main corona unit, and the front frame side drum shaft.
② Mount the DCD test sheet on the drum and secure it with rubber band or tape.
③ With the DCD test sheet mounted on the drum, insert the drum gear side onto the rear frame drum shaft in such a manner as to allow routing of the DCD wiring harness through the developer unit mounting slot.
④ Install the front frame side drum shaft.



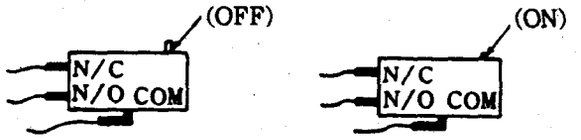


⑤ Install the blank lamp unit.
NOTE: Be sure to install the blank lamp as a different corona curren will be measured if it is not installed.
⑥ Close the frames.
⑦ Clean the transfer corona wire. Do this job without mounting th main corona unit.
⑧ Manually set the doorswitch on.
⑨ Connect the DCD test leads to the meter and the DCD sheet.



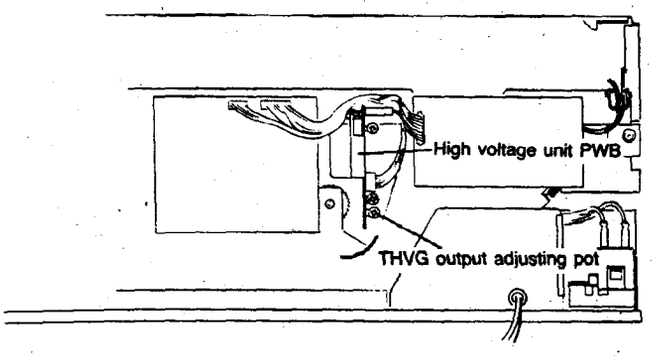
IMPORTANT: Make sure that the black test lead is connected to good chassis ground.
When the digital multimeter is used, connect the tes leads as follows:
Red clip to the negative jack of the meter.
Blue clip to the positive jack of the meter.
And set the meter range as follows:
Knob-1 to DCmA range.
Knob-2 to 0.2.
When the ammeter is used, connect the test lead as follows:
Red clip to the negative jack of the ammeter.
Blue clip to the positive jack of the ammeter.

⑩ Measure the current at the front and rear frame sides. The curren difference must be within 4.0μA.
a. Turn the main power on and enter test command 10. The transfer high voltage unit will activate for 30 seconds.
b. Measure the drum current at the front and rear frame sides.
- When the test harness microswitch is off, the front frame side current is indicated on the meter.
- When the test harness microswitch is on, the rear frame side drum current is indicated on the meter.



c. Make sure that a current difference is not greater than 4.0μA. If the current difference is greater than 4.0μA, replace the corona unit.

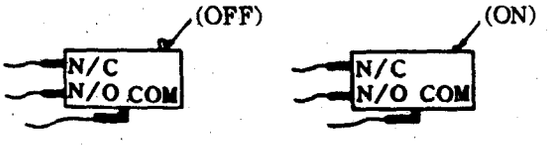
⑪ Adjust the THVG output current.
- Turn the main power on and enter test command 10. The transfer high voltage unit will activate for 30 seconds.
- Adjust the THVG output adjusting pot located on the high voltage unit so that the THVG output current should be at −14 ±2.0μA.



(Rear frame side)

b. Main corona output adjustment:

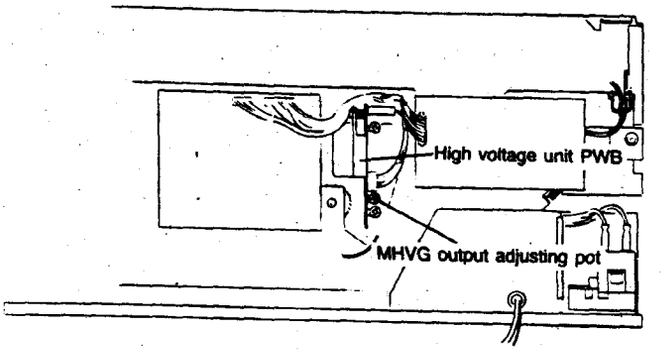
① Connect the DCD test leads to the meter, in reference to (3)-a-① to ⑥.
② Clean the main corona wire. The transfer corona unit may be mounted during the measurement.
③ Manually set the doorswitch on.
④ Connect the DCD test leads to the meter, in reference to (3)-a-⑥.
⑤ Measure the current at the front and rear frame sides. The current difference must be within 2.0μA.
   a. Turn the main power on and enter test command 9. The main high voltage unit will activate for 30 seconds.
   b. Measure the drum current at the front and rear frame sides.
      - When the test harness microswitch is off, the front frame side current is indicated on the meter.
      - When the test harness microswitch is on, the rear frame side drum current is indicated on the meter.



c Make sure that a current difference is not greater than 2.0μA. If the current difference is greater than 2.0μA, replace the corona unit.

NOTE: A slight fluctuation may occur in the current during the measurement. In such an event, read the the value at the center.

⑥ Adjust the MHVG output current.
- Turn the main power on and enter test command 9. The main high voltage unit will activate for 30 seconds.
- Adjust the MHVG output adjusting pot located on the high voltage unit so that the MHVG output current should be at 22.5 ±1.0μA.

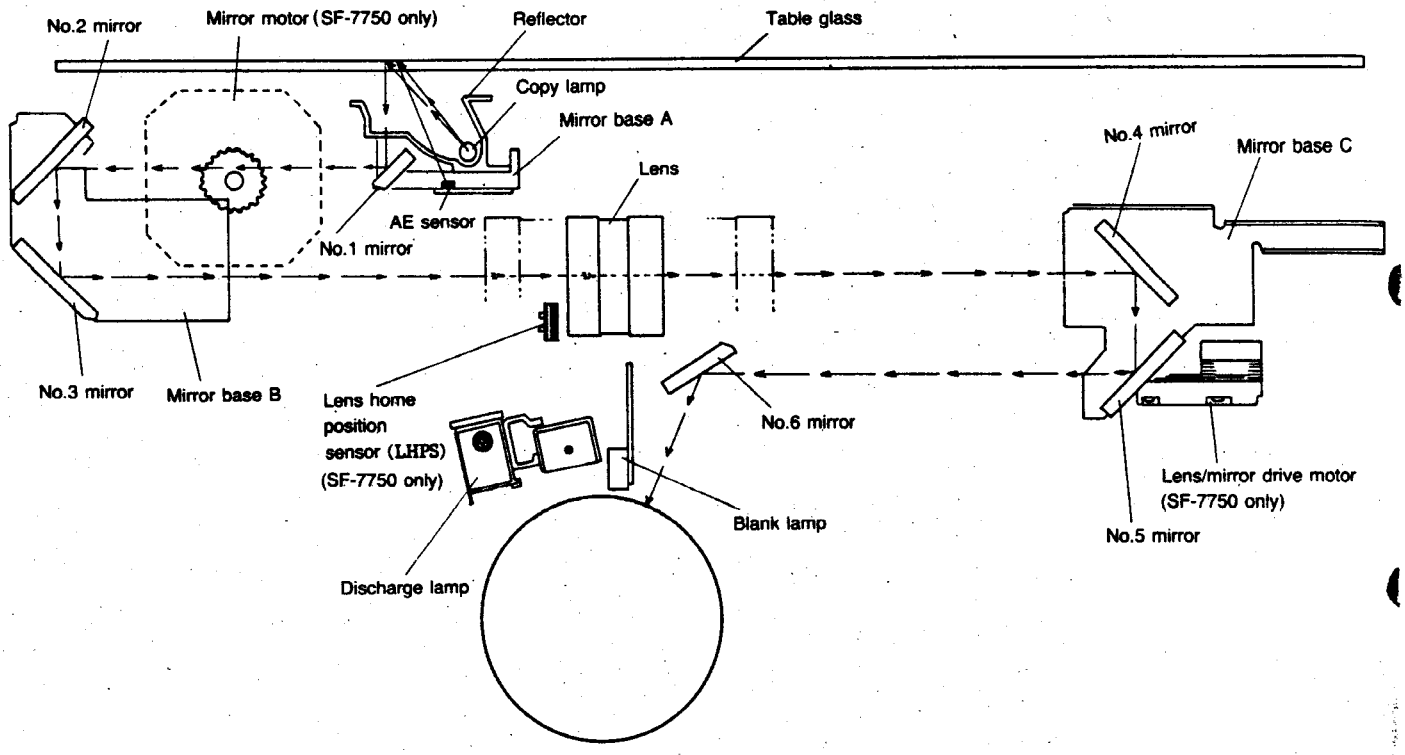


[10] OPTICAL SYSTEM

1. General description

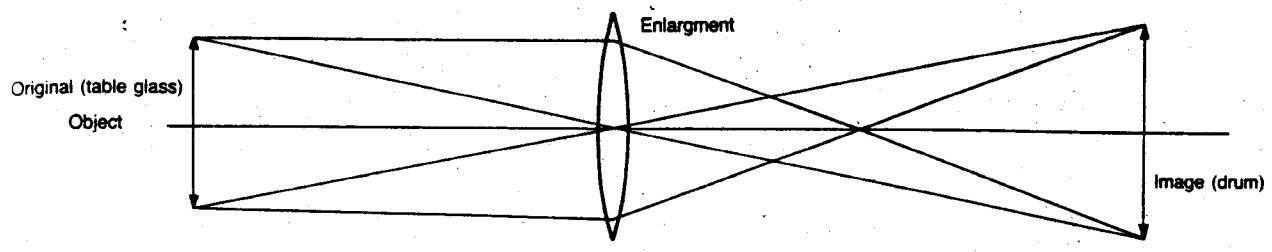
The optical system of this copier consists of a fixed focal distance lens and six mirrors.
Because the lens position is shifted relative to the mirrors, reduction and enlargement is possible from ×0.64 to ×1.54 in 91 increments of 0.01.

In the SF-7750, the lens position relative to the mirrors is changed by means of a stepping motor. The lens is fixed in the SF-7700 as it does not feature variable magnification.
The reason six mirrors are used, is to adjust the optical path to the internal mechanism. This system permits a smaller internal structure.
Exposure is controlled electronically by varying the intensity of the copy lamp. The voltage applied to the copy lamp is stabilized to enhance uniform exposure.
A slit exposure and moving light source is used in combination with a stationary original table.

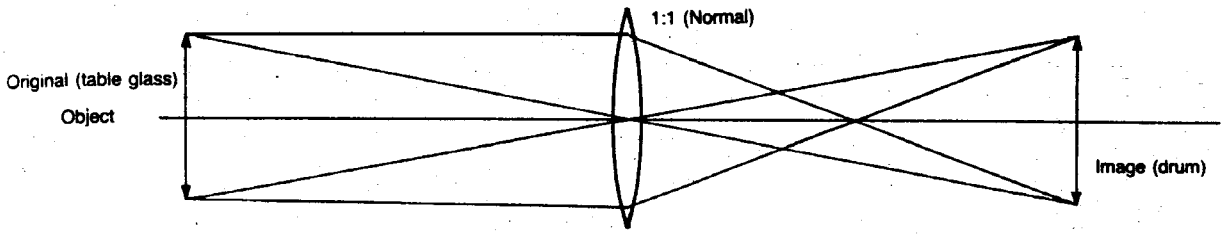


(Relation of original, lens, vs. image in each magnification mode) (For the SF-7750 only)

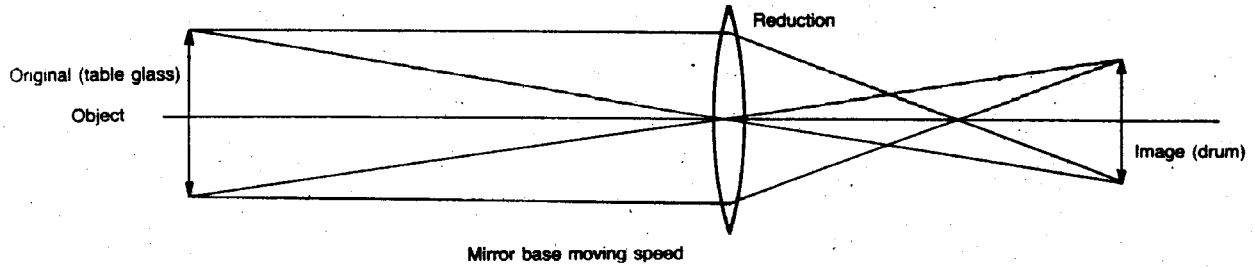
In the enlargement mode, as compared to the 1:1 or normal mode, the lens shifts closer to the original. The table glass to lens distance becomes shorter. The No.4 and No.5 mirrors (mirror base C) moves away from the lens, increasing the lens to image distance. This also increases the object to image distance.

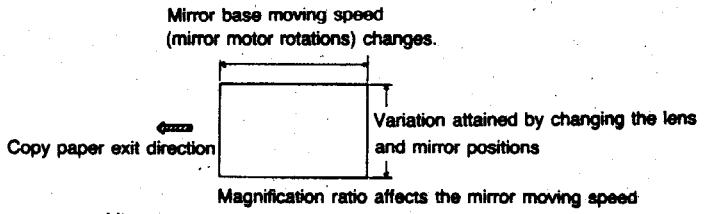


In the normal or 1:1 mode, the table glass to lens distance and the lens to image distance are equal. In this mode the object to image distance is shortest.



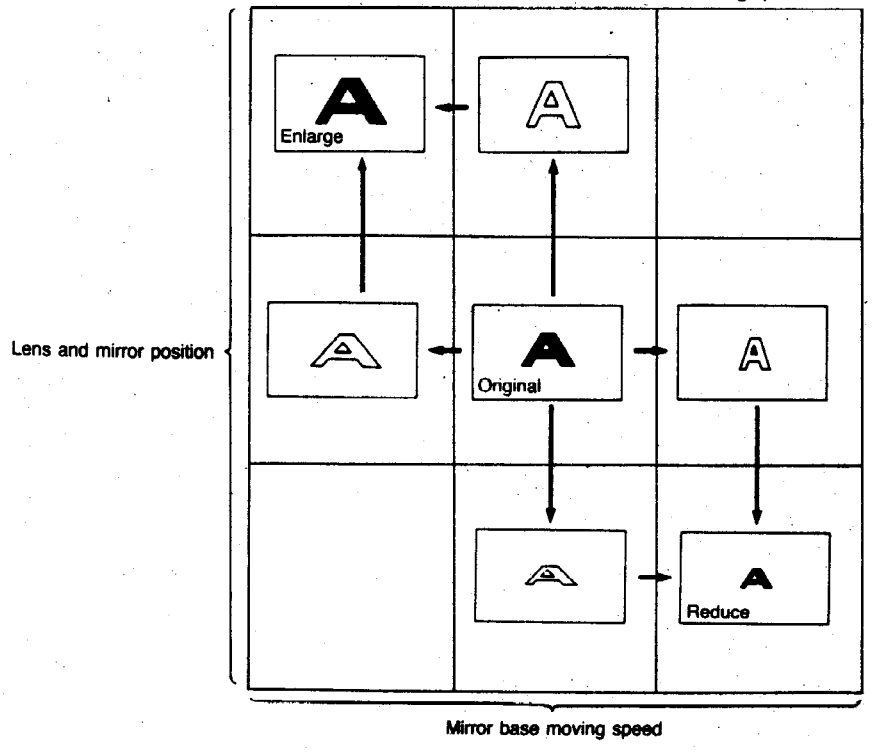
In the reduction mode, as compared to the normal mode, the lens shifts closer to the image. The original to lens distance becomes longer. The No.4 and No.5 mirrors (mirror base C) moves away from the lens. The lens to image distance increases along with the object to image distance.




Mirror base moving speed
(mirror motor rotations) changes.
Variation attained by changing the lens
and mirror positions
Copy paper exit direction

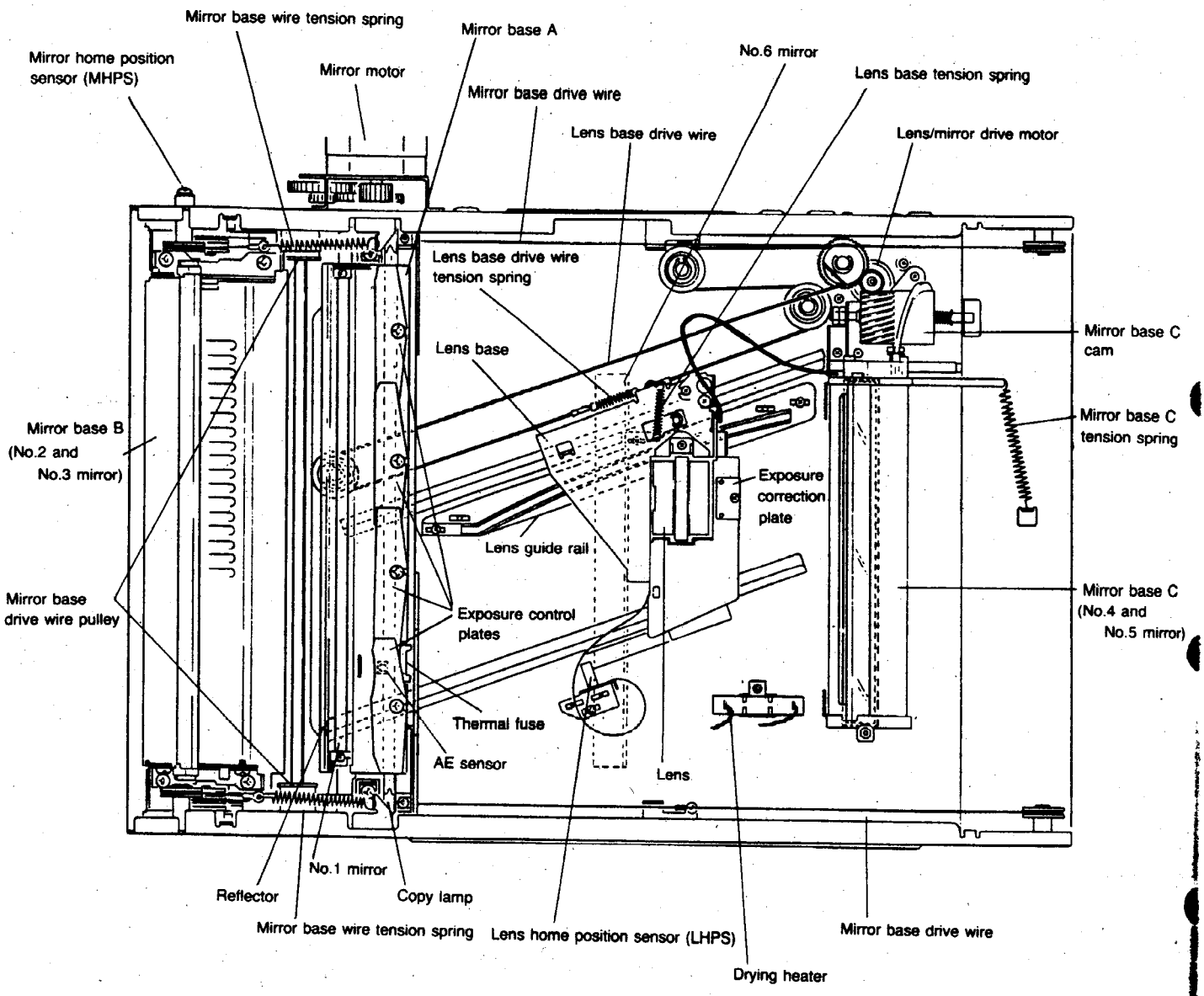
Magnification ratio affects the mirror moving speed

Mirror moving speed < drum rotations < mirror moving speed



2. Major parts identification and function

(SF-7750)



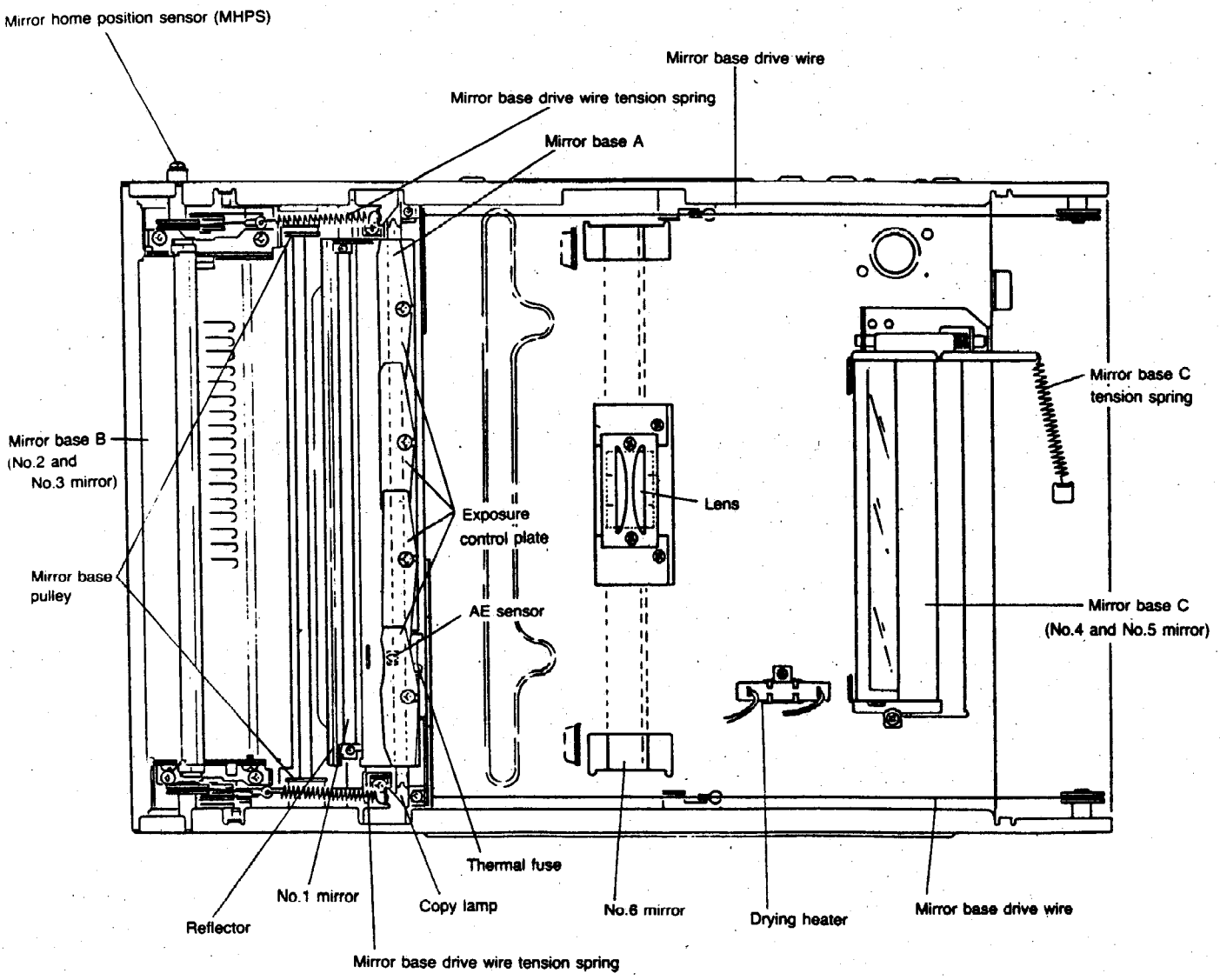
(2) Types of self-diagnosis

Status code	Trouble symptom and cause	Test command used
L1	If the mirror home position sensor (MHPS) did not turn off within one second after the start of the mirror. If the mirror home position sensor (MHPS) was off at the start of a copy operation.	1, 2
L3	If the mirror home position sensor (MHPS) did not turn on within three seconds after the start of the mirror return.	1, 2
L4	Main motor trouble. (Failure in the main motor control PWB. Main motor seizure or irregular rotation.)	25, 32
L5	If the lens home position sensor (LHPS) did not turn on or off within 7.5 seconds after the start of the initial operation.	2, 26, 27
L9	If it took more than 1.1 seconds to shift a single bin position. If it took more than 10 seconds to return to the home position during reset. (Drive motor locked, motor failure, sensor failure, sorter PWB failure, wiring harness problem between the sorter PWB and the main PWB, or main PWB failure).	61
H2	Open heat roller thermistor (harness failure).	–
H3	Heat roller irregular high temperature.	6→14
H4	Heat roller irregular low temperature. This status is issued if temperature drops below 150°C after the machine went into the ready condition. Or, if it took more than 132 sec. to reach the heat roller control temperature (187°C) after power on. Or, if the heater lamp has continued to actuate for more than 50 sec. to reach the ready condition from the power save mode. (Power save control temperature is 150°C).	6→14
U1	Voltage drop in the memory backup battery (below 2.3V).	18, 19→13
U2	Data transfer trouble between the main circuit and memory circuit.	–
U3	Data transfer trouble in the main PWB, ~~operation PWB, or SADF PWB~~. ~~HARNESS MOTOR~~ PWB OPTICS.	When the PRINT switch is depressed upon occurrence of the U3 status, the cause is displayed by its number.
U4	Data transfer trouble between the main PWB and the SADF control PWB.	
U	Data transfer trouble between the main PWB and the operation PWB.	
CH (on)	Open front cover or failure in the front cover position sensing switch (DSW).	–
CH (flicker)	Developer unit not inserted in the machine or connector contact failure.	–
CE	Open sorter door	–
PC	Personal counter is not inserted in the machine equipped with the personal counter.	–

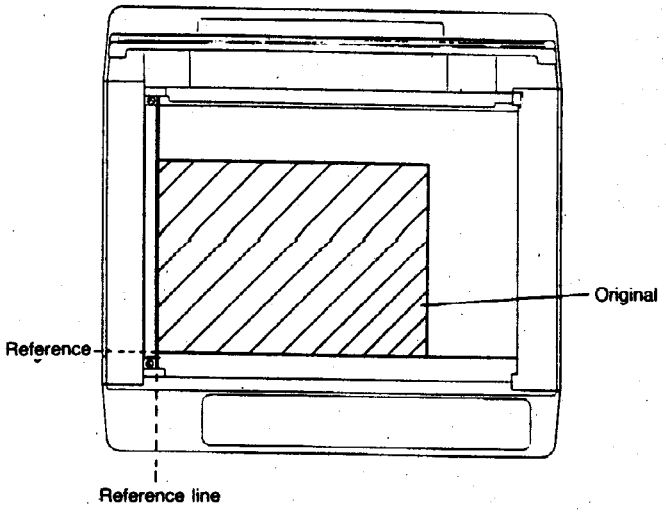
The table below describes the phenomenon and cause of U3, U4, and U trouble.

Status	Cause code	Phenomenon	Cause
U3	Flashes 0	Data transfer trouble between the main PWB and the operation PWB.	• A failure in the main PWB. • A failure in the operation PWB. • A failure in the wiring harness between the main PWB and the operation PWB.
	Flashes 1	An error in the copy lamp control zero-cross pulse.	• A failure in the operation PWB. • A failure in the CLC PWB. • A failure in the wiring harness between the operation PWB and the CLC PWB. • AC power not supplied to the CLC PWB.
	Flashes 2	An error in the AE sensor output level.	• A failure in the CLC PWB. • A failure in the AE sensor PWB. • A failure in the copy lamp unit. • A failure in the wiring harness between the AE sensor PWB, CLC PWB, and operation PWB.
U4	Flashes 0	Data transfer trouble between the main PWB and the SADF control PWB.	• A failure in the main PWB. • A failure in the SADF control PWB. • A failure in SADF power supply. • A failure in the wiring harness between the main PWB and the SADF. • Incorrect parameter entry for an option by test command 78.
	Flashes 1	Failure in the SADF document feed roller motor (DFM) or document carry belt motor (DTM).	• Failure of DFM. • Failure of DTM. • A failure in SADF control PWB. • A failure in the wiring harness between the SADF control PWB and the DFM, DTM. • Over load of DFM or DTM.
U	Flashes 0	Data transfer trouble between the operation PWB and the main PWB.	• A failure in the main PWB. • A failure in the operation PWB. • A failure in the wiring harness between the main PWB and the operation PWB.

(SF-7700)


Mirror home position sensor (MHPS)
Mirror base drive wire
Mirror base drive wire tension spring
Mirror base A
Mirror base C tension spring
Mirror base B (No.2 and No.3 mirror)
Lens
Exposure control plate
Mirror base pulley
AE sensor
Mirror base C (No.4 and No.5 mirror)
Thermal fuse
No.1 mirror
Copy lamp
No.6 mirror
Drying heater
Mirror base drive wire
Reflector
Mirror base drive wire tension spring

(1) The original table
The original table is stationary and the original is aligned at the front left corner of the original glass.



(2) Copy lamp
The SF-7700/7750 uses a 250W/85V (100V version) or 250W/170V (200V version) copy lamp.
The copy lamp is controlled by the regulated power supply from the CLC PWB, to produce a stable illumination.

(3) Mirrors
The SF-7700/7750 uses six mirrors; No.1 mirror mounted on the mirror base A, No.2 and No.3 mirrors on the mirror base B, and No.4 and No.5 mirror on the mirror base C.
The mirror bases A and B move during copying operation and the mirror base C moves to change object to image distance in the enlargement and reduction mode.

(4) Lens
- Structure: 4 lens, 1 group
- F number: 7.0
- Focus distance: 183.5±4mm

(5) Lens home position sensor (LHPS)(SF-7750 only)
Used to sense the lens location. The output signal is used to control magnification ratio based on the home position of the lens.
Magnification ratio varies depending on the sensor location.

(6) Lens base (SF-7750 only)
The lens is mounted on this base which moves towards the paper entry side in the reduction mode or toward the paper exit side during the enlargement mode using the lens/mirror drive motor.

(7) Lens guide rail (SF-7750 only)
Used to control the lens axis in the enlargement or reduction mode. Deviation in the horizontal direction (copy deviation towards front or rear frame side) can be adjusted by changing the lens guide rail position.

(8) Lens drive wire (SF-7750 only)
Interconnected with the lens/mirror drive motor to move the lens base.

(9) Mirror base C
The No.4 and No.5 mirrors are mounted to mirror base C. The location of the mirror base C shifts by means of the lens/mirror drive motor to match object to image distance during the enlargement or reduction modes. (SF-7750 only)

(10) Mirror base C operating cam (SF-7750 only)
Used to change the position of the mirror base C by means of the lens/mirror drive motor.

(11) Mirror motor (SF-7750 only)
A DC 3-phase brushless motor is used to drive the mirror base A and B. Motor rotations can be varied according to the given magnification ratio.

(12) Mirror home position sensor (MHPS)
A light transmittive type sensor used to detect the mirror base A home position.

(13) Mirror base B
On this base is mounted the No.2 and No.3 mirrors which is driven by the mirror motor via cables.

(14) Mirror base A
Consists of the No.1 mirror, thermal fuse, AE sensor, copy lamp, exposure control plates, and reflector; which is driven by the mirror motor via cables.

(15) Thermal fuse
Closely mounted on the reflector to prevent againsr high temperature in the optical system. Power to the copy lamp is directly shut off when high temperature is sensed.
100V series: 126°C, 10A
200V series: 126°C, 10A

(16) Reflector
Light from the copy lamp is reflected on the original.

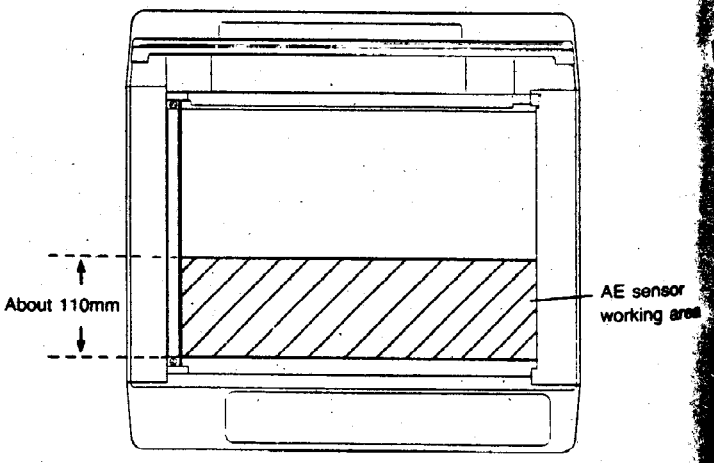
(17) Exposure control plates
Four plates are installed on mirror base A to adjust exposure to attain uniform light exposure between the front and rear frame sides.

(18) Mirror base drive wire
Used to convey mirror motor drive power to the mirror bases A and B.

(19) Lens/mirror drive motor (SF-7750 only)
A stepping motor is used to shift the location of the lens and mirror base C.

(20) Exposure correction plate (SF-7750 only)
Mounted on the lens holder and is used to attain uniform illumination over the drum in the enlargement or reduction modes.

(21) AE sensor
Intensity of an original image is sensed by the light from the copy lamp. The AE sensor area is 110mm wide at the original lead edge. A photodiode is used for the sensor element.

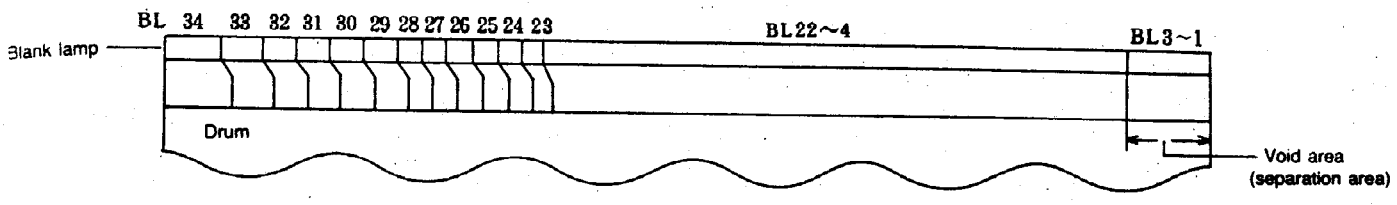


(22) Blank lamp (BL)

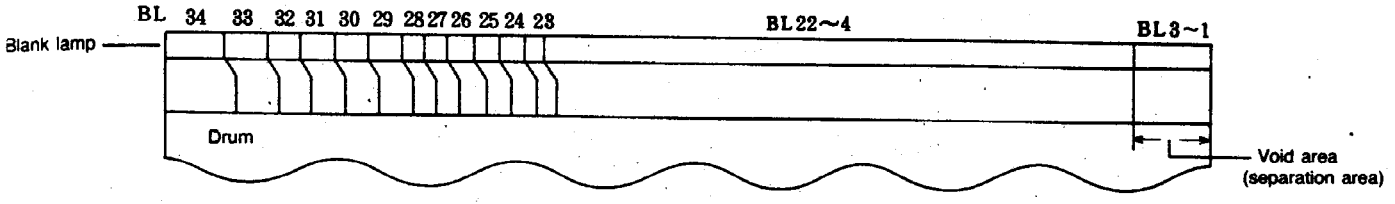
Charges on the drum may remain out of the image area in the reduction mode, in the lead edge void area, the separation void area, and trail edge area in the enlargement or normal mode. The blank lamp is therefore applied to remove the charge in the unwanted area to prevent toner deposits out of the image area.

(Blank lamp exposure)

(AB series)



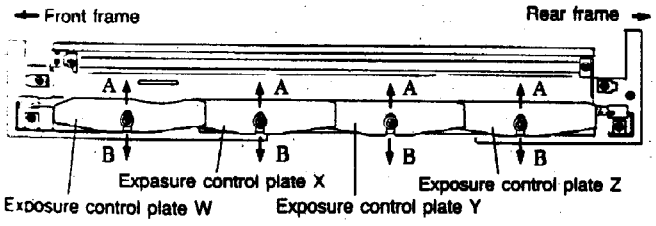
(Inch series)



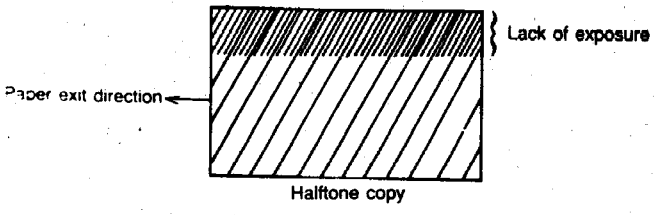
3. Adjustments

(1) Exposure balance adjustment

Make a half-tone copy on the A3 (11" × 17") paper in the normal (1:1) mode, then adjust the exposure balance by moving the exposure control plates W, X, Y, and Z in direction A or B.
Direction A makes the exposure darker and direction B makes the exposure lighter.



NOTE: If the exposure control plate W was moved, copy density needs to be adjusted.
Example: If the copy is like the one shown below, move exposure control plate W in direction B to balance the exposure.

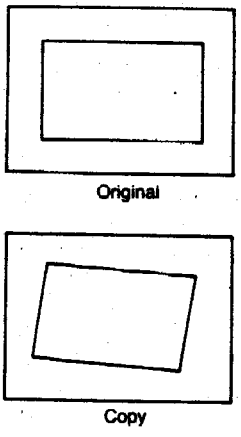


(2) Mirror base B parallelism adjustment

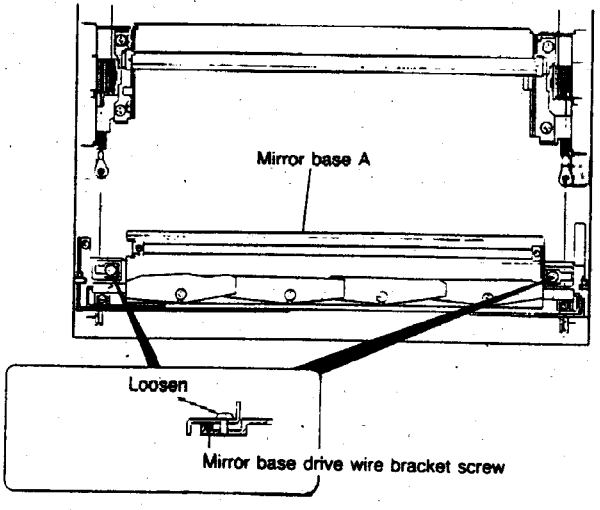
This adjustment is required to obtain parallelism of the mirror base B with the drum surface and the original surface.
The adjustment is required for any of the following reasons:

- After replacement of the mirror base drive wire.
- After replacement of the mirror base A or mirror base B.

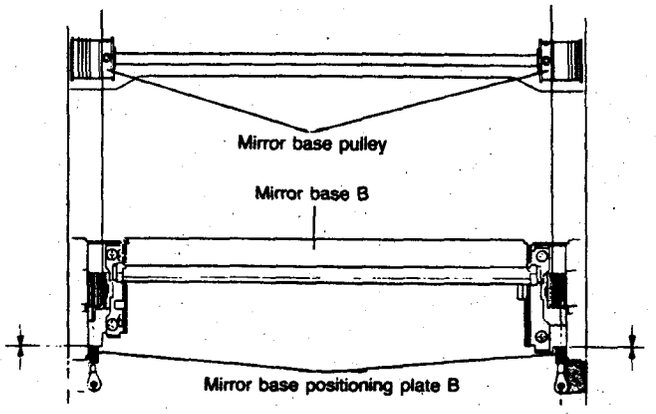
- When the copy like the one shown below is produced.



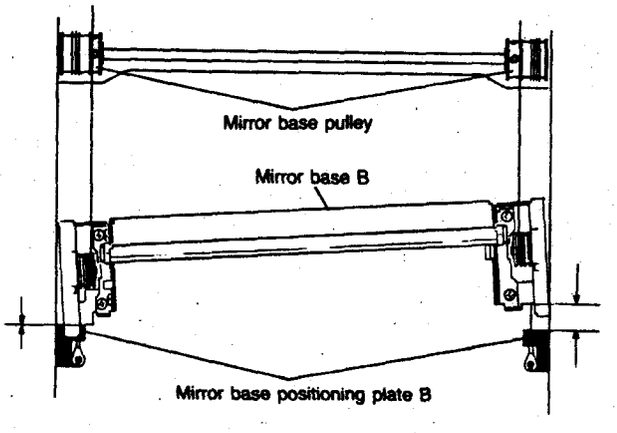
① Loosen the mirror base A wire holding screw, one each on the front frame and rear frame side.



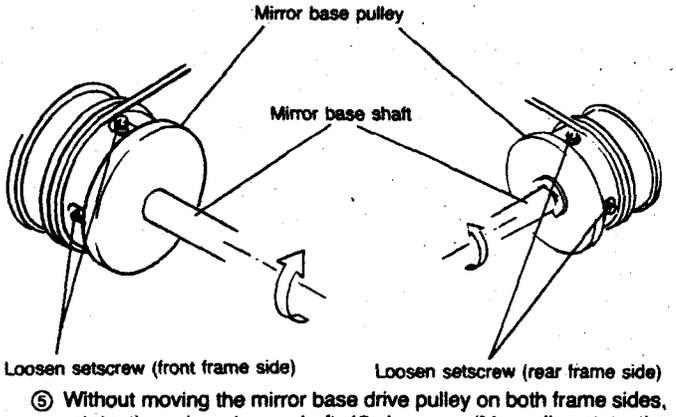
② Manually rotate the mirror base drive gear and bring mirror base B into contact with the mirror base B positioning plate B. If the front frame side of mirror base B comes in contact with the mirror base B positioning plate at the same time as the rear frame side, there will be no need for adjustment as it has been adjusted properly.



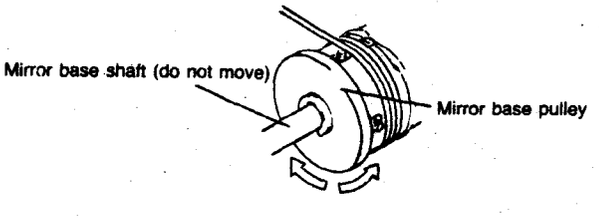
③ If either end of mirror base B is not in contact with the mirror base positioning plate B, the following action is required.



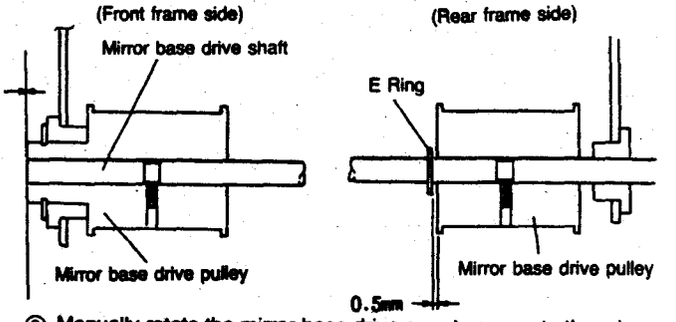
④ Loosen each mirror base drive pulley setscrews on both frame sides.



⑤ Without moving the mirror base drive pulley on both frame sides, rotate the mirror base shaft 45 degrees. (Manually rotate the mirror base drive gear)
⑥ Tighten the two setscrews of the pulley which the mirror base B came in contact with the mirror base positioning plate B.
⑦ Manually rotate the other side pulley and stop it when the mirror base B comes in contact with the positioning plate, without moving the mirror base shaft.



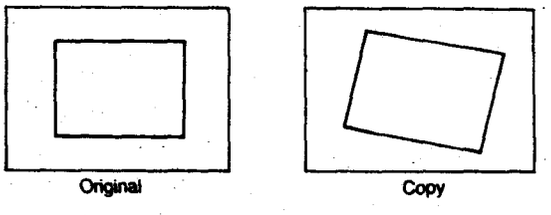
⑧ Fasten the two pulley setscrews fingertight.
NOTES:
- When installing the front frame side mirror base drive pulley, align the edge of the mirror base drive pulley with the edge of the mirror base drive shaft.
- When installing the rear frame side mirror base drive pulley, leave a clearance of 0.5mm between the edge (inside) of the mirror base drive pulley and the E-ring.



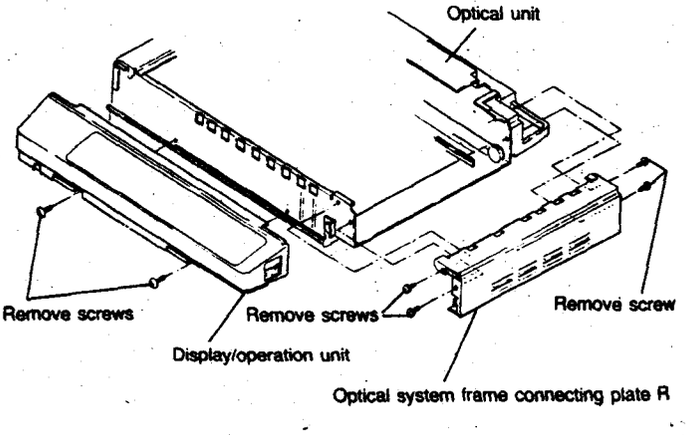
⑨ Manually rotate the mirror base drive gear to separate the mirror base B from the positioning plate B, then bring it in contact again. Ensure in this instance that both frame sides of the mirror base B came in contact with the mirror base positioning plate at the same time.
⑩ If step ⑨ was not attained, loosen the two setscrews of the pulley which the mirror base B is not in contact with the mirror base positioning plate B, and repeat steps ⑦ thru ⑨ until step ⑨ is satisfied.
⑪ If it was successful, completely tighten the two pulley setscrews that have been set fingertight at ⑧.

(3) Mirror base A parallelism adjustment

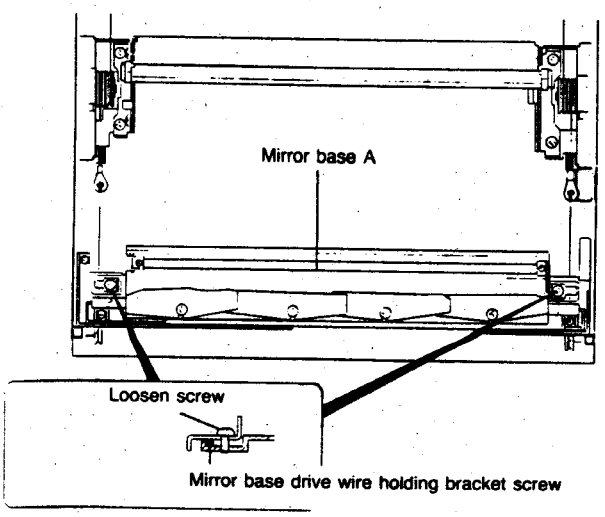
This adjustment is required to obtain parallelism of mirror base A with the drum surface and the original surface.
NOTE: This adjustment can only be done after successful mirror base B parallelism adjustment.
The adjustment is required for any of the following reasons:
- After replacement of the mirror base drive wire.
- After replacement of mirror base A or mirror base B.
- After mirror base B parallelism adjustment
- When the copy like the one shown below is produced.



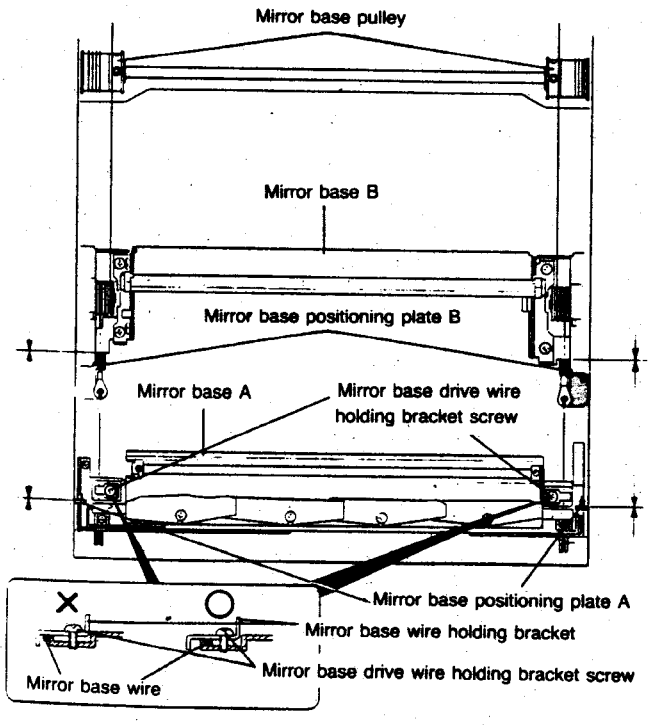
① Remove the right side rear panel.
② Remove the display/operation unit.



③ remove the optical frame connecting plate R.
④ Loosen the mirror base wire holding screw on both frame sides of mirror base A.



⑤ Manually rotate the mirror base drive gear and bring mirror base A in contact with the mirror base positioning plate B. Ensure in this instance that the front and rear frame sides of mirror base B come in contact with the mirror base positioning plate at the same time.
⑥ Push mirror base A in the direction of positioning plate A and have both frame sides of mirror base A come in contact with the mirror base positioning plate A.
⑦ Tighten the mirror base wire holding bracket screw on both frame sides of the mirror base A.
⑧ Check your adjustment.


Mirror base pulley
Mirror base B
Mirror base positioning plate B
Mirror base A
Mirror base drive wire holding bracket screw
Mirror base positioning plate A
Mirror base wire holding bracket
Mirror base drive wire holding bracket screw
Mirror base wire

NOTE: The mirror base wire must be routed between the mirror base A frame and the mirror base wire holding bracket.

(4) Mirror base C parallelism adjustment

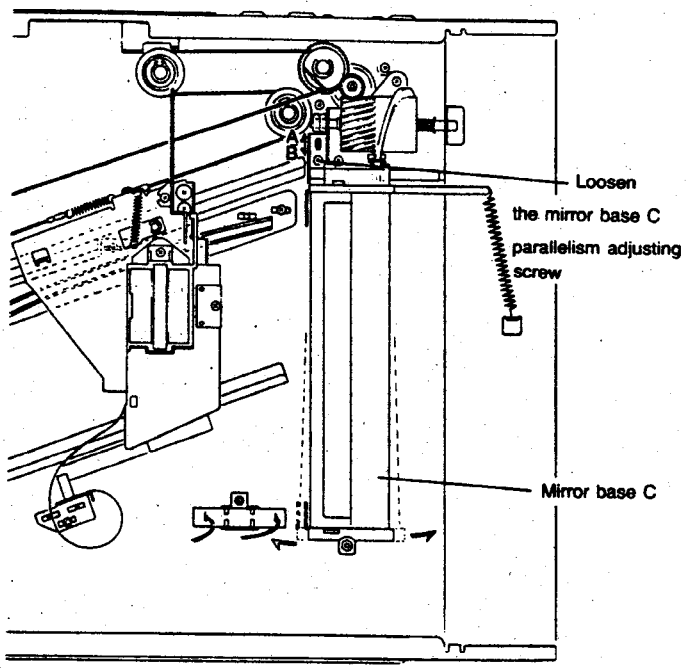
This adjustment is required to obtain parallelism of mirror base C with the drum surface and the original surface.

NOTE: This adjustment can only be done after successful mirror base A parallelism adjustment.

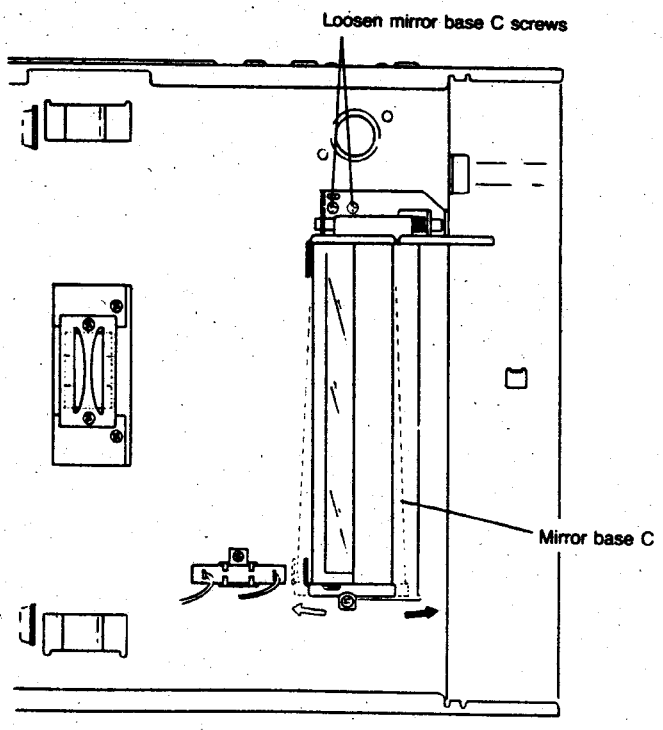
The adjustment is required for any of the following reasons:

- After removal of mirror base C.
- After replacement of mirror base C.

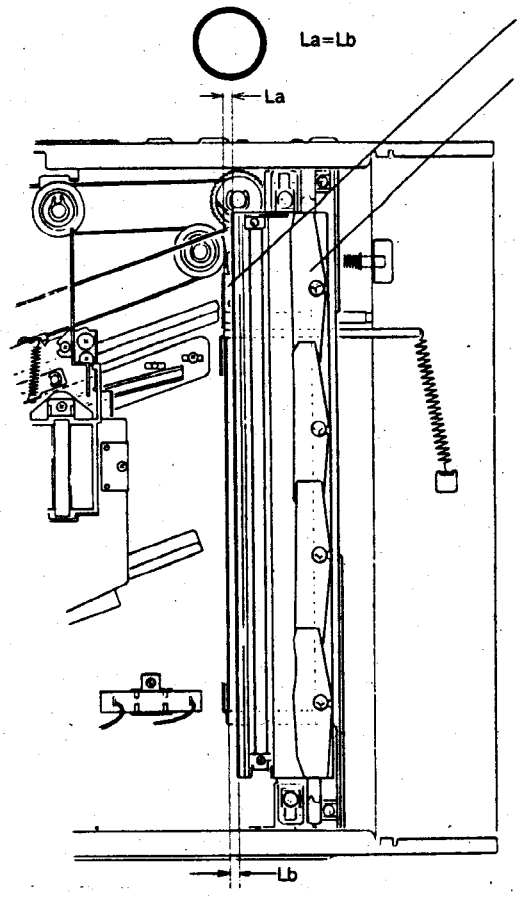
① Loosen mirror base C parallelism adjusting screw, and change the location of mirror base C to the front frame side or rear frame side (direction A or B). (SF-7750 only)



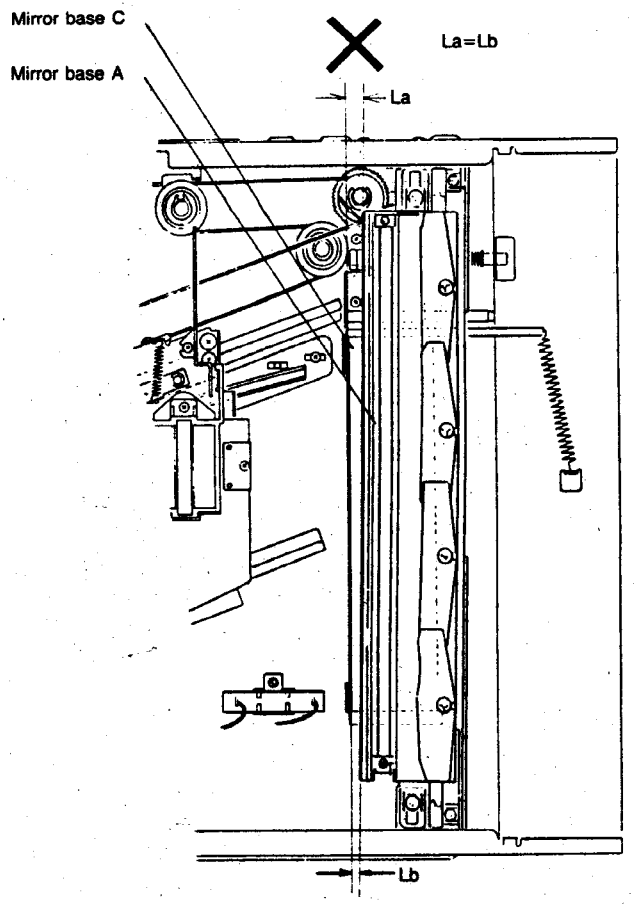
Loosen the mirror base C screw and move the mirror base C in the direction of either arrow to change the location. (SF-7700 only)



② Manually rotate the mirror base drive gear to move mirror base A until the left side of mirror base C comes in contact with the left side of the reflector of mirror base A, while watching from straight above.
③ Check to see if the left side of mirror base C frame is parallel to the left side of the reflector of mirror base A.



(The left side of mirror base C frame is parallel with the left side of mirror base A reflector.)



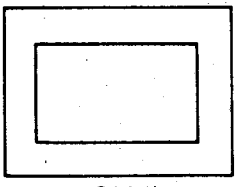
(The left side of the mirror base C frame is not parallel with the left side of the mirror base A reflector.)

④ If the left side of mirror base C frame is parallel with the left side of the reflector of mirror base A, the adjustment has been complete.

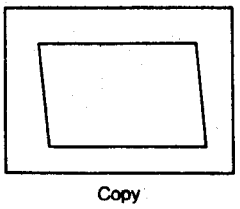
(5) Vertical skew adjustment

By adjusting the height of the front frame side of mirror base C, the height of the mirror base C front frame side is balanced to the height of the rear frame side, to adjust vertical skew on the copy.
Before this adjustment is started, it is necessary that the mirror base A parallelism has been properly adjusted to mirror base B.
This adjustment is required for any of the following reasons:

- After replacement of mirror base A, B, or C.
- After removal or replacement of a part within mirror base A, B, or C.
- When a copy like the one shown below is produced.

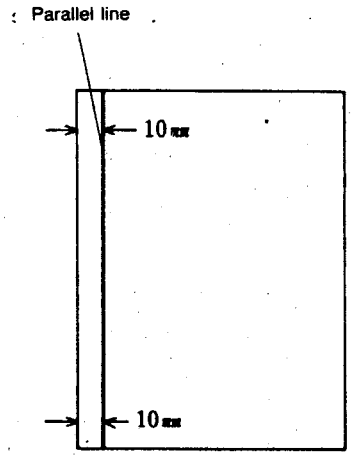


Original

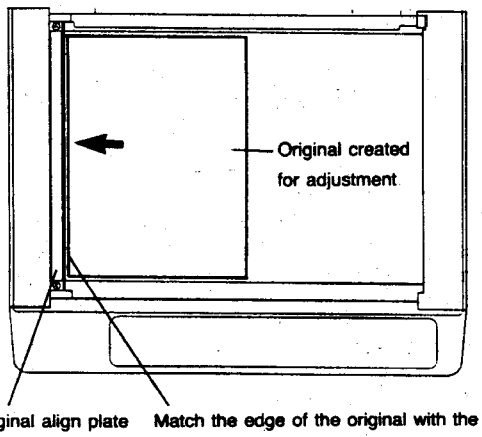


Copy

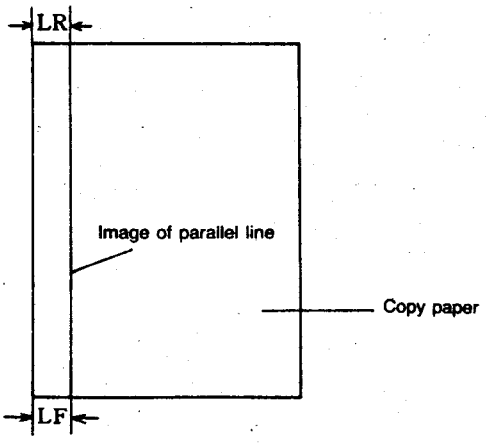
① Prepare a sheet of A4 or 11" × 8-1/2" paper for an original and draw a parallel line 10mm from the lead edage of the paper. This has to be exact.



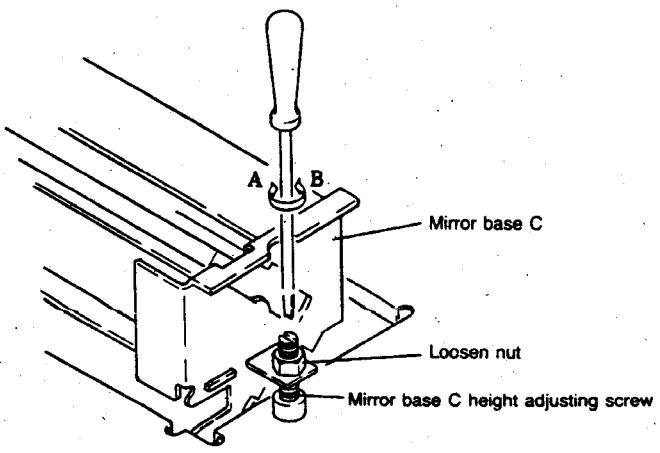
② Place the original on the original table.



③ Make a copy in the normal mode.
④ Measure the distance of LR and LF (figure).



⑤ If LF is not equal to LR, loosen mirror base C front frame side height adjusting nut.



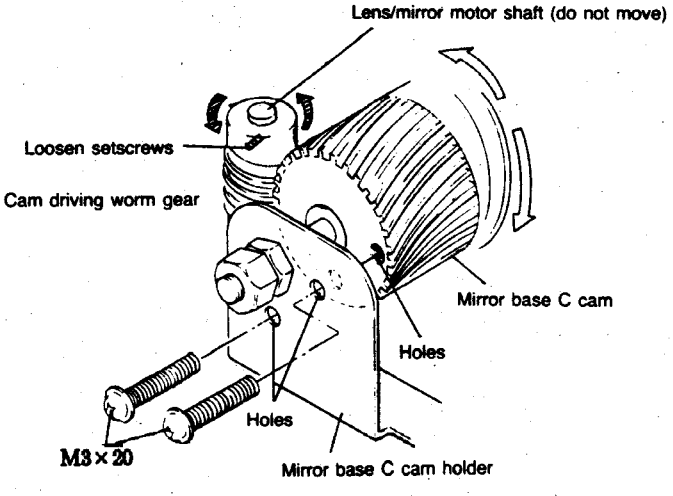
If LF is larger than LR:
Turn the adjusting screw clockwise (arrowhead A) to increase the height of mirror base C front frame side.
If LF is not greater than LR:
Turn the adjusting screw counterclockwise (arrowhead B) to decrease the height of mirror base C front frame side.
⑥ Repeat above ② through ⑤ until LF becomes equal to LR.
⑦ Tighten the height adjusting screw.
⑧ Check your adjustment.

(6) Mirror base C cam position adjustment (SF-7750 only)

The cam is used to change the position of mirror base C to Focus the lens exactly to the given magnification ratio. That is, OID is varied to meet the magnification ratio.
Cam position needs to be adjusted for any of the following reasons:

- After replacement or removal of the mirror/lens drive motor.
- After replacement or removal of the cam drive worm gear.
- After replacement or removal of the mirror base C drive cam
- Image is correctly Focused in the normal mode, but proper Focus is not attained in the enlarge or reduce mode.

① Loosen setscrew that hold the cam drive worm gear.
② Turn power on and set the magnification ratio to normal (×1.00) mode.
③ Turn power off.
④ Without moving the lens/mirror motor drive shaft, rotate the cam worm gear and match the two cam holes in mirror base C with the two cam holes in the mirror base C cam holder.

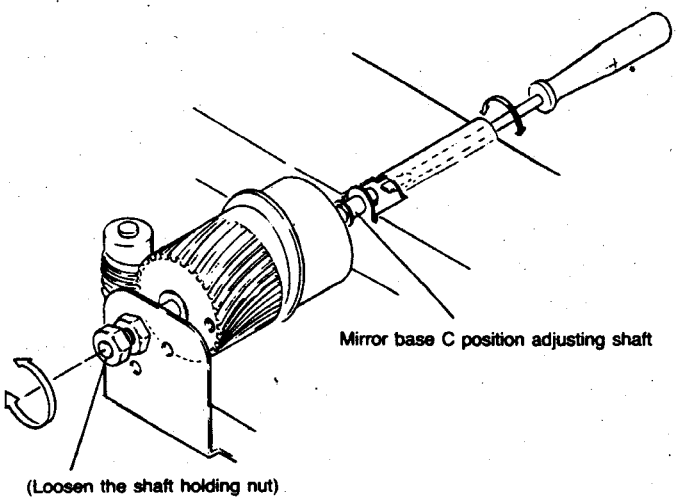


⑤ Insert two M3 × 20 screws through the mirror base C cam holder hole to the mirror base C cam hole.
⑥ Tighten cam worm gear holding setscrew.
⑦ Remove the two screws.

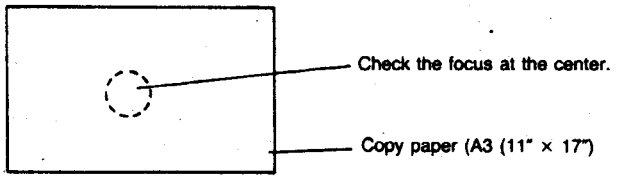
(7) Focus adjustment-1 (at the center of the copy image)

Focus at the center of the copy image can be adjusted by changing the location of mirror base C.
It is essential before this adjustment is done that proper parallelism for mirror bases A, B, and C, are correct.
Focus adjustment is required for any of the following reasons:
- After moving the mirror base C position or replacement.
- After replacement of the lens.
- After replacement of mirror base A or B.

(SF-7750)
① Loosen the mirror base C drive cam shaft nut.

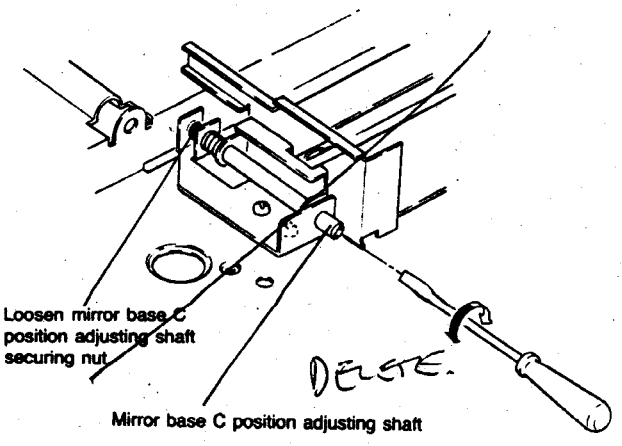


② Remove the right side upper, rear panel.
③ Unlock the optical unit lock lever and slightly lift up the optical unit, without unfastening the two connectors between the optical system and the process unit.
④ Rotate the mirror base C position adjusting shaft with a screwdriver through the clearance between the optical system and the process unit.
⑤ Completely close the optical unit.
⑥ Place the test chart (UKOG-0089CSZZ) or resolution test chart on the original table.
⑦ Make a copy on an A3 (11" × 17") copy paper in the normal mode.
⑧ Check the focus at the center of the copy paper.

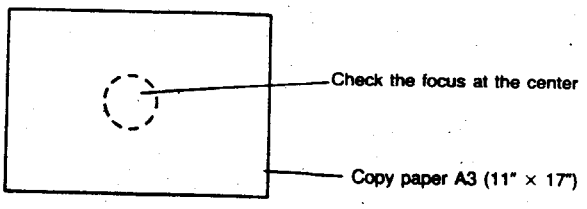


⑨ If the focus is proper and the resolution is more than 5.0 lines/mm, tighten the shaft securing nut.
NOTE: Pay attention that the mirror base C position adjusting shaft does not rotate.
If a proper focus is not attained, repeat steps ③ through ⑧.

(SF-7700)
① Loosen Mirror Base C Position adjusting shaft securing nut.
② Turn the mirror base C position adjusting shaft with a screwdriver.



③ Place the test chart (UKOG-0089CSZZ) or resolution test chart on the original table.
④ Make a copy on an A3 (11" × 17") copy paper in the normal mode.
⑤ Check the focus at the center of the copy paper.

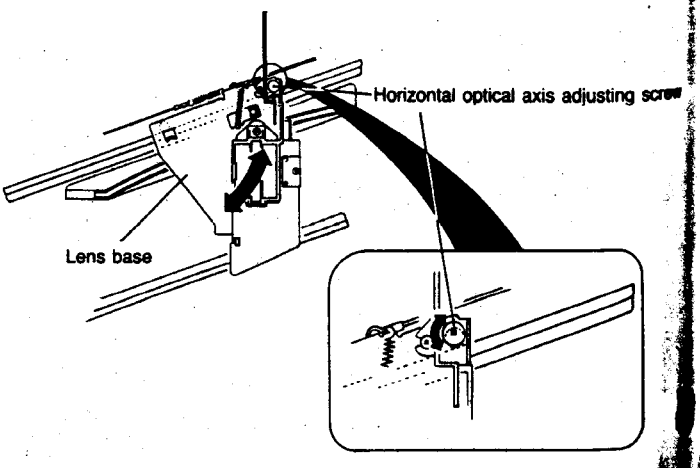


⑥ If the focus is clear and the resolution is more than 5.0 lines/mm, tighten the shaft securing nut.
If the proper focus is not attained, repeat steps ② through ⑤.

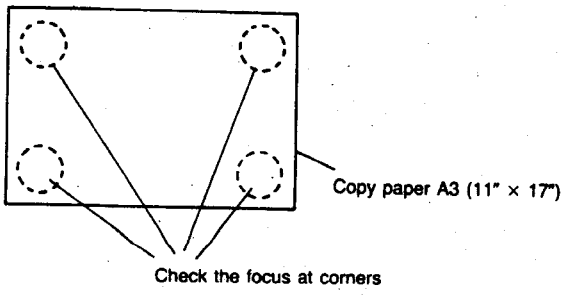
(8) Focus adjustment-2 (at the corner of the copy image)

(SF-7750 only)
The focus of an image at the corner must be adjusted by the horizontal optical axis of the lens (lens horizontal inclination).
Before the adjustment is done, it is essential that proper parallelism of the mirror bases, A, B, and C, and the focus at the center of copy image is within specifications.
Copy corner focus adjustment is required for any of the following reasons:
- After replacement of the lens.
- After replacement of the lens base.
- After replacement of mirror bases A, B, or C.

① Turn the horizontal optical axis adjusting eccentric screw on the lens base.



② Place the test chart (UKOG-0089CSZZ) or resolution test chart on the original table.
③ Make a copy on an A3 (11" × 17") copy paper in the normal mode.
④ Check the focus at the corners of the copy paper.



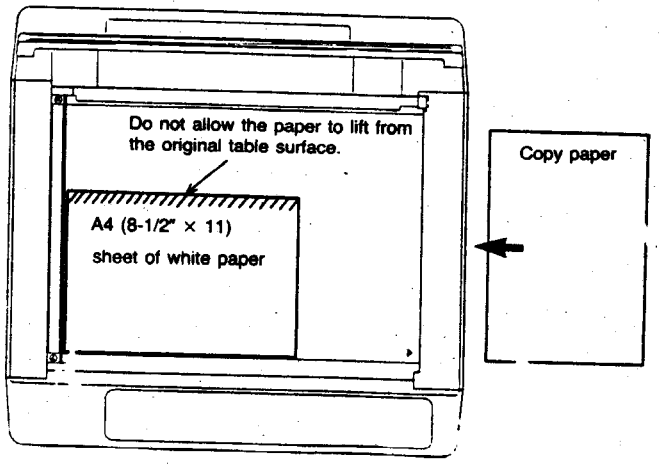
⑤ If the focus is clear and the resolution is more than 5.0 lines/mm, the adjustment has been complete.
If the proper focus is not attained, repeat steps ① through ④.

(9) Horizontal optical axis adjustment

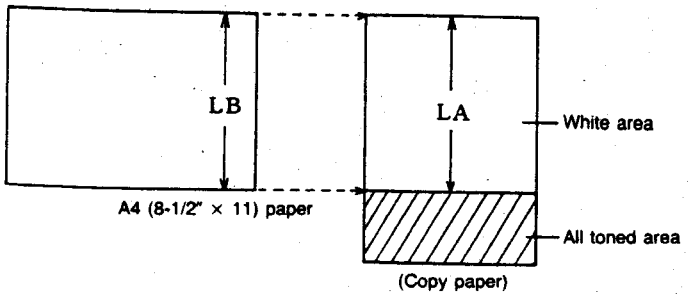
The horizontal optical axis must be adjusted by moving the lens location towards the front frame or rear frame side.
Before the adjustment is done, it is essential that proper parallelism of the mirror bases, A, B, and C, and the focus at the center and corners of the copy image is within specifications.
The horizontal optical axis is required for any of the following reasons:

- After replacement or relocation of the lens, lens guide rail (SF-7750 only), mirror, mirror base wire, or lens base (SF-7750 only).

① Place a sheet of A4 or 8-1/2" × 11" white paper on the original table landscape as shown in the figure below.

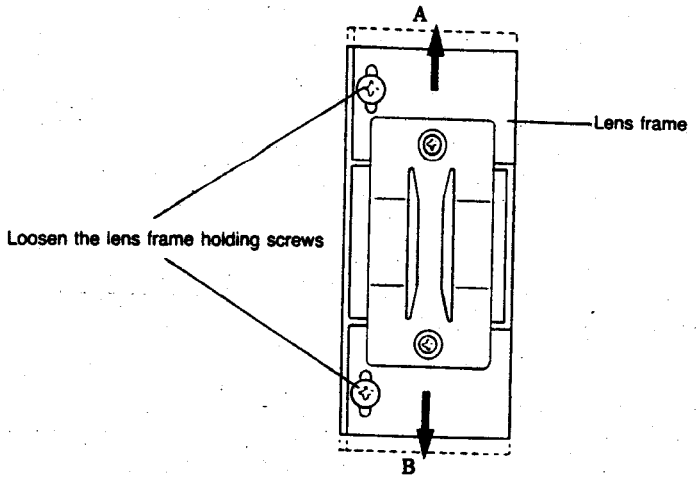


② Load the A4 or 8-1/2" × 11" paper in the cassette, landscape.
③ Make a copy in the normal mode with the original cover left open.
NOTE: The shadowed portion of the A4 or 8-1/2" × 11" paper must stay flat on the surface of the original table.
④ Compare the white area in the copy (LA) with the width of the paper (LB).

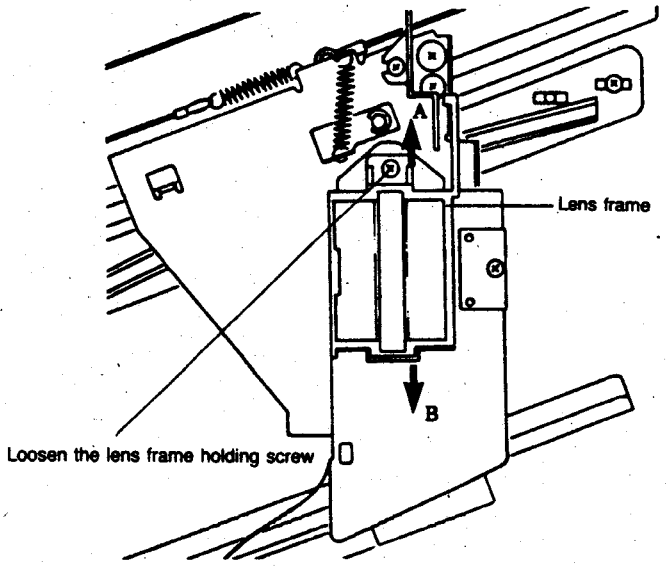


Adjustment is not required if the LA − LB difference is not greater than 2.0mm.
If the LA − LB difference is greater than 2.0mm, move the lens frame towards the rear frame side (arrowhead A).
If the LA − LB difference is not greater than −2mm, move the lens frame towards the front frame side (arrowhead B).

(SF-7700)

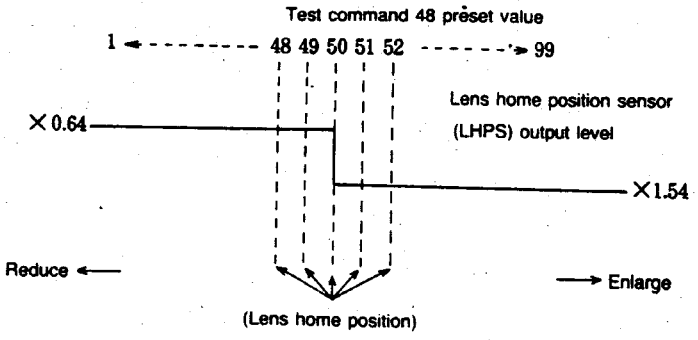


(SF-7750)



(10) Vertical direction copy magnification ratio adjustment (SF-7750 only)

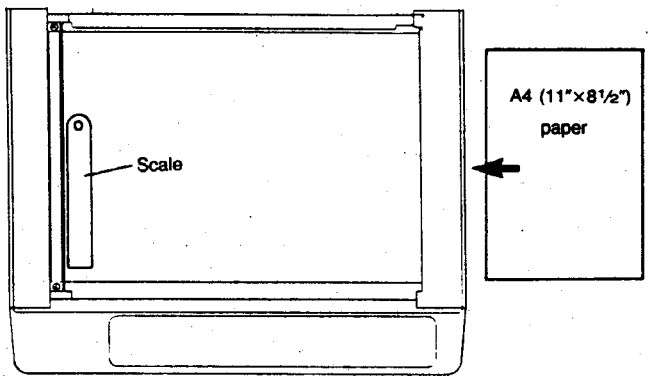
This can be adjusted by changing the preset value of test command 48, because the lens home position is determined by test command 48 preset value.



The reference point for the lens home position sensor (normal mode) may be changed using test command 48. Changing the reference number changes the point at which the lens stops in the 1:1 mode. This replaces the need to physically move the LHPS for adjustment.
The reference point of the home position sensor corresponds to the lens number. Adjustment must be done when the mirror bases A, B, and C are in complete parallelism and the copy image is in exact focus.
Adjustment is required for any of the following reasons:

- After moving or replacement of the lens home position sensor.
- After replacement of the lens.
- After replacement or change in the location of the mirror base.
- After replacement of the main PWB.
- When the trouble status U2 is displayed.
- After replacement of an IC3 (RAM) within the main PWB.

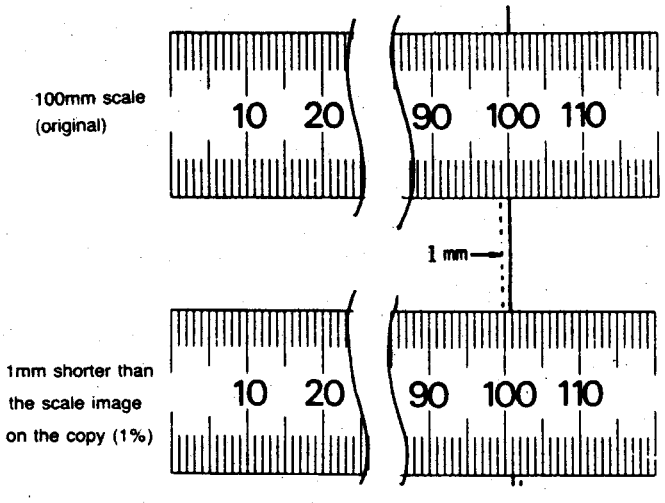
① Place the scale over the original table as shown below.



② Make a copy on the A4 or 8-1/2" × 11" paper.
③ Compare the scale image on the copy paper with the length of the scale.
④ Obtain the vertical direction copy magnification ratio compensation value with the following formula in use.
Vertical direction copy magnification ratio compensation value

$$(\text{MRCV}) = \frac{(\text{original size} - \text{copy image size})}{\text{original size}} \times 100\%$$

(Example)



Vertical direction copy magnification ratio compensation vlaue (MRCV) $= \frac{(100-99)}{100} \times 100 = 1\,[\%]$

⑤ Execute test command 48.
Push C → P → 0 → P → [4] → [8] → [PSW].
With this, the previously stored preset value is displayed.
⑥ Obtain the vertical direction copy magnification ratio adjustment preset value in the following way:
Vertical direction copy magnification ratio adjustment preset value = previous preset value (displayed at ⑤) + vertical direction copy magnification ratio compensation value (MRCV) × 10
(Ex)
Previous preset value = 50, Vertical direction copy magnification ratio compensation value (MRCV) = 1[%]
Vertical direction copy magnification ratio adjusting preset value = 50 + 1 × 10 = 60
⑦ Enter the new vertical direction copy magnification ratio adjusting preset value.
□ → □ → PSW.
Changing the preset value by "1" changes the copy magnification ratio 0.1%.
⑧ Make a copy in the normal mode and compare the scale image on the copy with the actual length of the scale.
⑨ If the size of the scale on the copy image matches with the actual scale size, the adjustment has been complete. Repeat steps ② through ⑧ until the adjustment is achieved.
⑩ Cancel test command 48.
Press the CLEAR key.

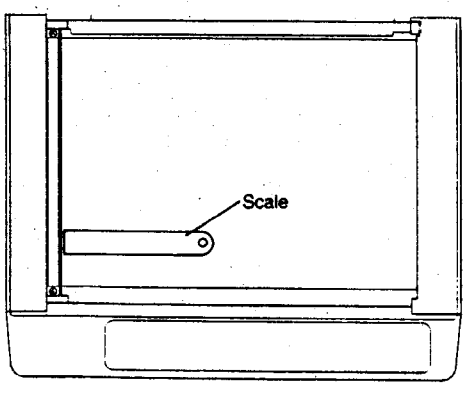
(11) Copy lead edge adjustment

Copy lead edge adjustment is required for any of the following reasons:

- After replacement or relocation of the mirror home position sensor (MHPS).
- After replacement or relocation of the mirror base.
- After replacement of the PS roller or PS clutch.
- After replacement of the main PWB.
- After replacement of an IC (RAM, IC3) within the main PWB.
- When the trouble status U2 is displayed.
- After replacement or relocation of optical components such as lens, mirror, mirror base.

In the normal mode, image loss should be 0 to 3.0mm and the void area 0 to 3mm.
Copy lead edge, image loss, and void area adjustments are done with test command 50 and 58. The PSS activation timing is adjusted by test command 50 in order for the image on the original to be copied on the given area of the copy paper.
Immediately upon deactivation of the mirror home position sensor (MHPS) after the mirror base has started to move, the time and pulses are counted within the CPU. The PSS is active when the time and pulses set by test command 50 are reached. The time from when the MHPS turned off until the PSS turns active differs according to the enlarg, hormal, and reduce modes. (SF7750 only)
With test command 58, the blank lamp deactivation time is adjusted to adjust the copy lead edge void area.
NOTE: The copy lead edge void area is acheived by the blank lamp.

A. Place the scale on the original table.



B. Execute test command 50

(SF-7750)

① Press C → P → 0 → P → 5 → 0 → PSW to execute test command 50. As the ready lamp turns on, the current number between 1 and 99 is displayed to show the contents of PSC-a.

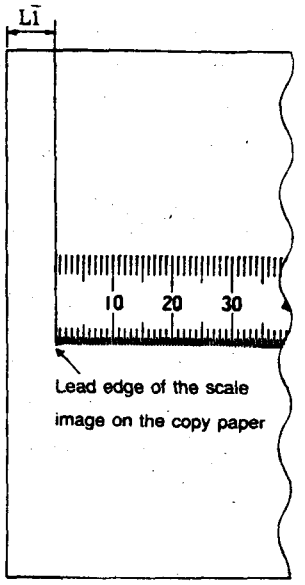
② Press 0 two times (00 displayed) and the PSW key to reset the PSC-a. At the same time a copy is made, the contents of PSC-a is reset to 00.

③ Press the PAUSE key. The pause lamp turns on.
The figure preset (0~99) is displayed to show the contents of PSC-b.

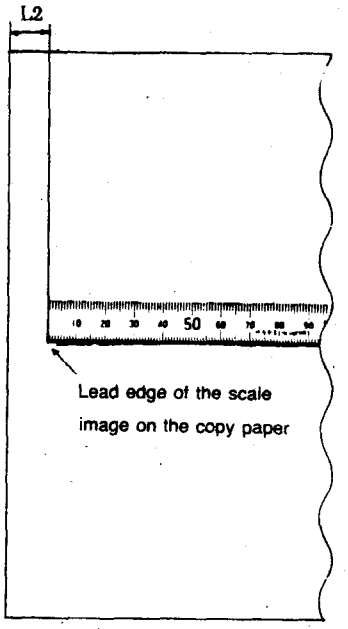
④ Press 0 twice (00 displayed) and the PSW key to reset the PSC-b. At the same time a copy is made, the contents of PSC-b is reset to 00.

NOTE: Both PSC-a and PSC-b are preset values which are used to determine the PSC activation timing, and are therefore stored in the memory.
PSC-a is the preset which is used to adjust lead edge variation during magnification mode. Unless it has been preset properly lead edge registration will vary dependant upon the different magnification or reduction modes selected.
PSC-b is the preset which is used to adjust the PSC activation timing to match the top of the drum image with the lead edge of the copy paper.

⑤ Make a copy in the reduction mode (×0.64) and in the enlargement mode (×1.41) and measure the distance from the copy paper lead edge to the top of the scale image on the copy.



Enlarge copy (×1.41)



Reduce copy (×0.64)

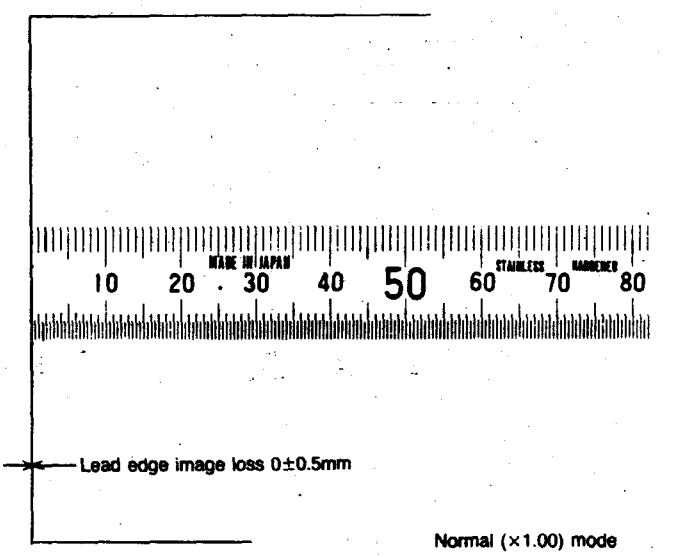
⑥ Obtaining the value of PSC-a and PSC-b.
There are two ways of obtaining these values.
First, the formula is used. Second, the table is used.
L1 = distance between the copy paper lead edge to the scale image in the enlarge copy (×1.41) mode.
L2 = distance between the copy paper lead edge to the scale image in the reduce copy (×0.64) mode.
• Use of formula
PSC-a = 11.81 × (L1 − L2)
PSC-b = (16.65 × L2) − (7.56 × L1)
Measuring unit is mm and fractions are rounded.
• Use of table (page 10–27)
Obtain the value from the table.
Example:
L1 = 14
L2 = 10
PSC-a = 47
PSC-a = 61

⑦ Press the PAUSE key and the pause lamp goes out.

⑧ Press □ → □ → PSW to enter the PSC-a value obtained in ⑥.

⑨ Press P → □ → □ → PSW to enter the PSC-b value obtained in ⑥. (The pause lamp turn on.)
Be careful not to enter a wrong figure for PSC-b, as it may cause a deviation of 0.11mm, regardless of the magnification ratio.

⑩ Make a copy in the normal mode and make sure that the lead edge image loss is within a range of 0±0.5mm.
If the image loss is not within the above limits, change the PSC-b so that it is within the limits.



Normal (×1.00) mode

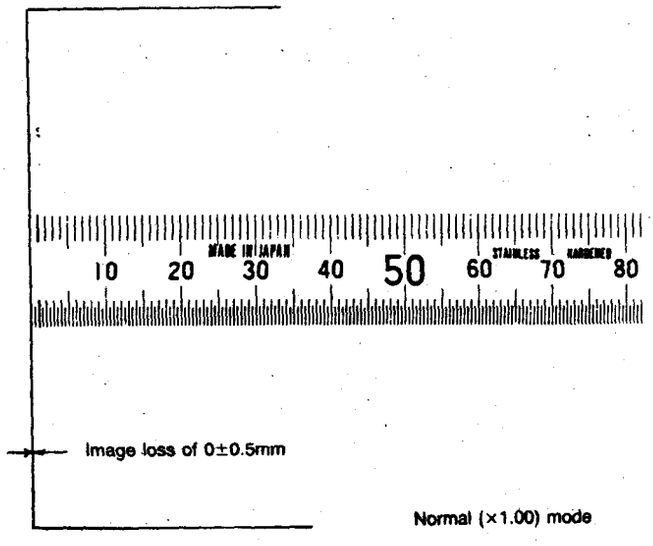
NOTE: The image loss adjustment value entered by test command 50 is just for adjustment and is not the final value. Final adjustment must be done by test command 58 (copy lead edge void area adjustment).

⑪ Press the CLEAR key to cancel test command 50.

(SF-7700)

① Press C → P → 0 → P → [5] → [0] → PSW to execute test command 50.
As the ready lamp comes active, the current number between 1 and 99 is displayed.

② Make a copy in the normal mode and check the lead edge image loss.
If the lead edge image loss is within limits of 0±0.5mm, there is no need to change the current preset value.

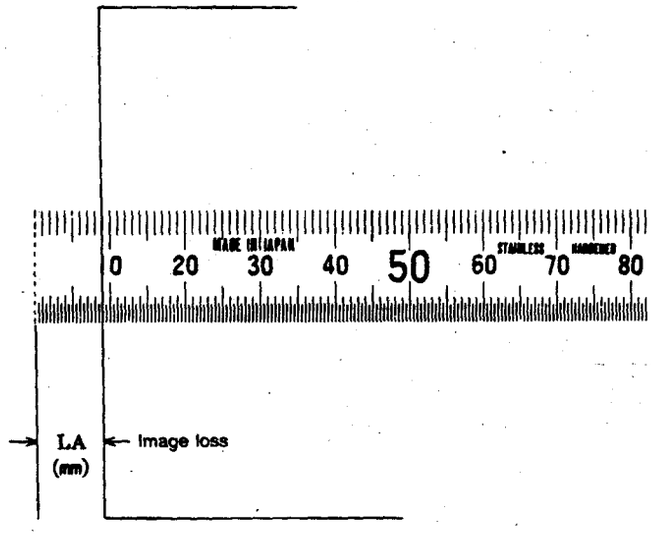


NOTE: The image loss adjustment value entered by test command 50 is just for adjustment and is not the final value. Final adjustment must be done by test command 58 (copy lead edge void area adjustment).

If the lead edge image loss area is not within the limits, do the following operation.

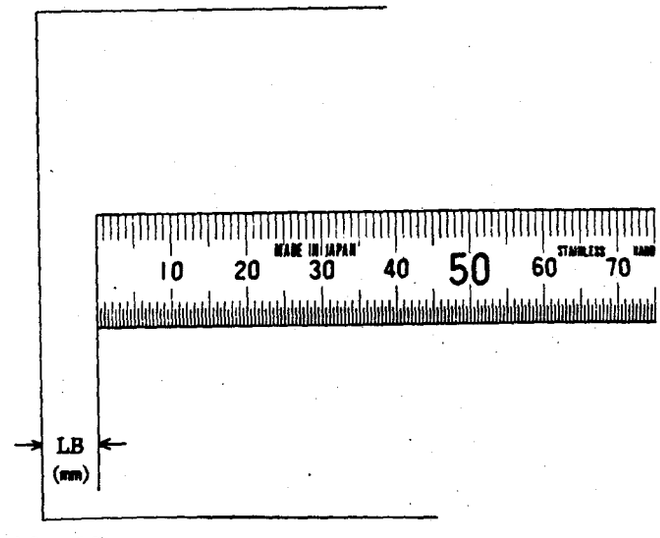
③ Obtain the test command preset value.

a. If the image loss is greater than 0.5mm.



Test command 50 preset value = currently stored value − (LA / 0.11)

b. If the image loss is greater than −0.5mm.



Test command 50 preset value = currently stored value + (LA / 0.11)

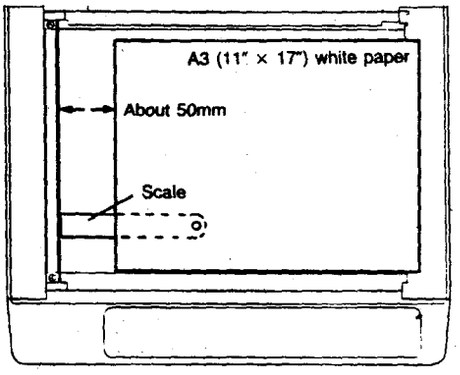
④ Enter the test command 50 preset value obtained in ③.
Press [P] → □ → □ → [PSW] to enter the preset value obtained in ③.
Be careful not to enter a wong figure for test command 50 preset value, as it may cause a deviation of 0.11mm.

⑤ Make a copy in the normal mode and check the lead edge image loss.
If the lead edge image loss is within limits of 0 to ±0.5mm, proceed to Step ⑥.
If not, repeat steps ③ through ⑤ until the results are satisfactory.

⑥ Press the CLEAR key to cancel test command 50.

C. Placing the scale and a sheet of white paper

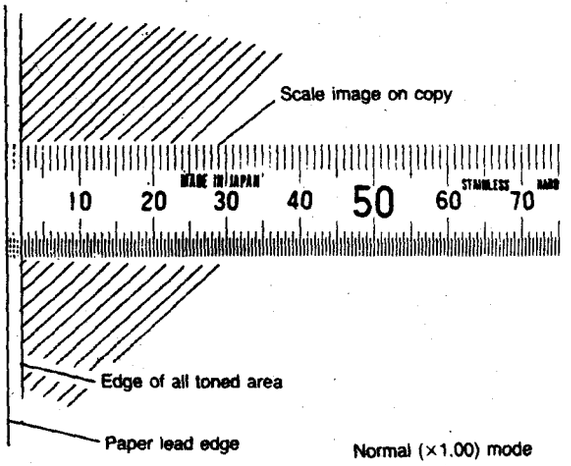
① Place the scale and a sheet of white paper on the original table as shown below.



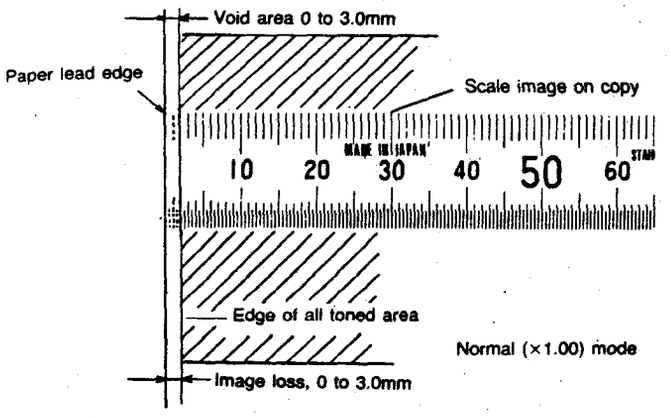
D. Executing test command 58

① Press C → P → 0 → P → 5 → 8 → PSW to execute test command 58. The copy magnification ratio changes to the normal mode (×1.00) and the currently stored number is displayed.

② Make a copy in the normal mode with the original cover left open. Now, enter the normal mode lead edge void area adjusting value so that the edge of the all toned area shows 2.0mm of the scale image on the copy.
Press □ → □ → [PSW]. Then, a copy is produced, and at the same time, the value entered is stored. Changing the value by "1" causes the void area to change 0.22mm.



③ Check to see that the image loss and void area are within the limits.
(Limits)
Image loss: 0 to 3.0mm
Void area: 0 to 3.0mm



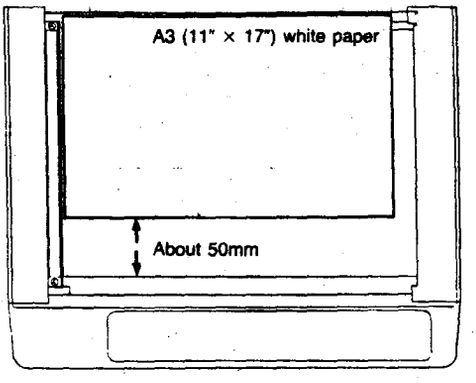
④ Press the CLEAR key to cancel test command 58.
NOTE: When the PSC-a or PSC-b value is changed using test command 50, the copy lead edge void area must be adjusted again using test command 58.

(12) Side void area adjustment

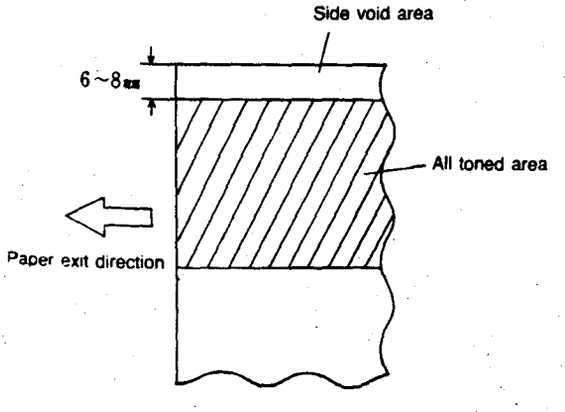
The side void area adjustment is required for any of the following reasons:

- After disassembly or replacement of the blank lamp unit.
  Side void area limits: 6 to 8mm

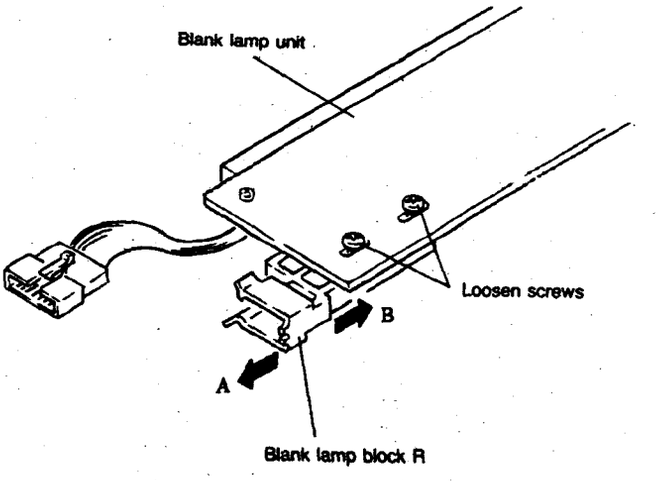
① Place a sheet of A3 (11" × 17") white paper on the original table as shown in the figure below.



② Make a copy in the normal mode with the original cover left open.
③ Measure the side void area.



④ Adjustment is not required if the side void area is within the limits of 6.0 to 8.0mm.
If not within the limits, move the blank lamp block R to adjust.

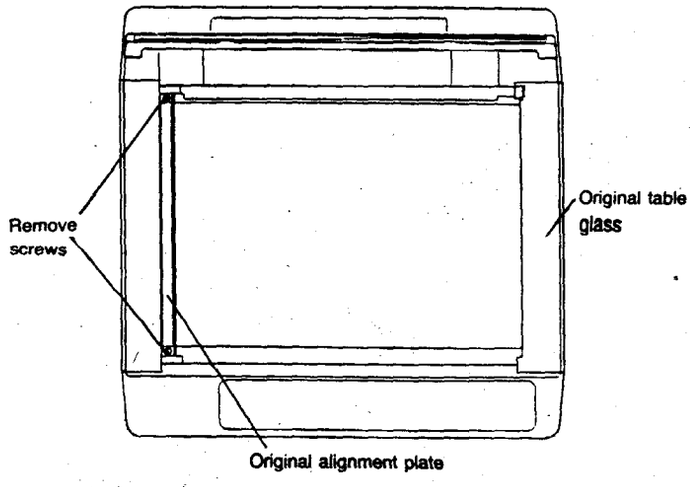


Shifting the blank lamp block R in the direction of A increases the side void area. Moving it in the direction of B decreases the side void area.

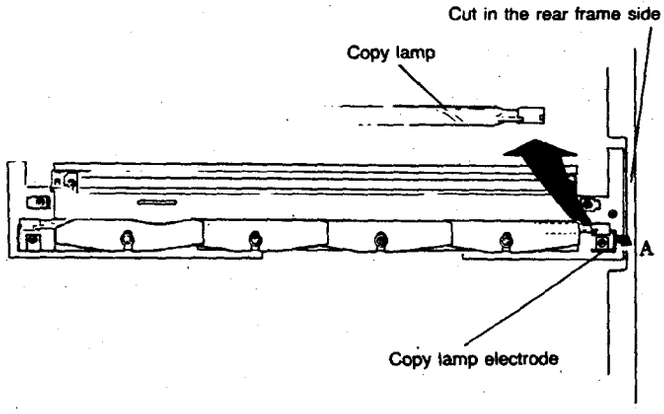
4. Major parts replacement

(1) Replacing the copy lamp

① Remove the original alignment plate and remove the original table glass.



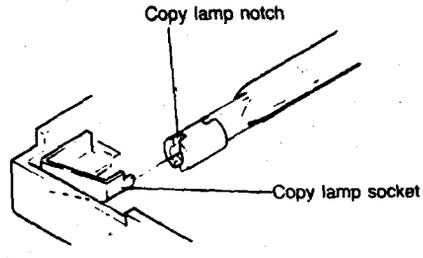
② Manually move mirror base A to the cut in the rear frame side.



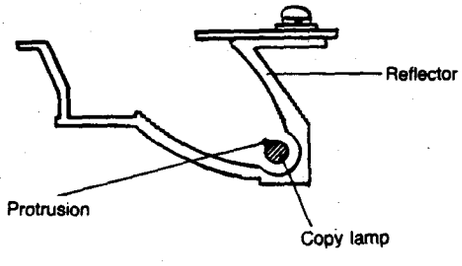
③ Push the copy lamp electrode on the rear frame side with a pair of tweezers in direction A to remove the copy lamp.

Hints and tips

- Make sure that electrodes on both sides are firmly engaged into the sockets.



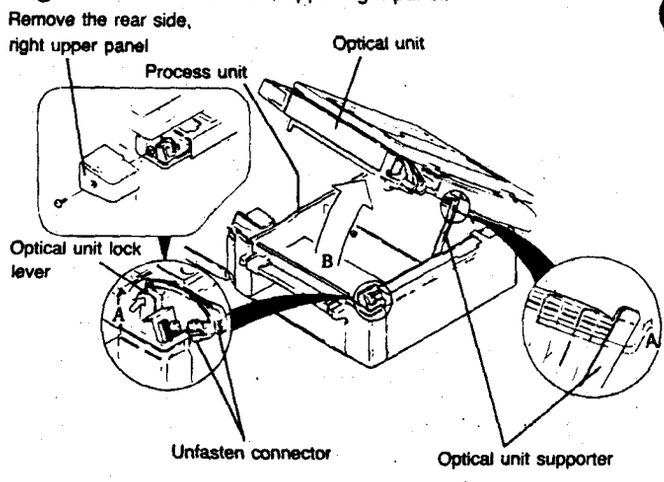
- Install the copy lamp with the protrusion on the lamp facing up.



(2) Replacing the mirror base drive wire

A. Opening the optical system

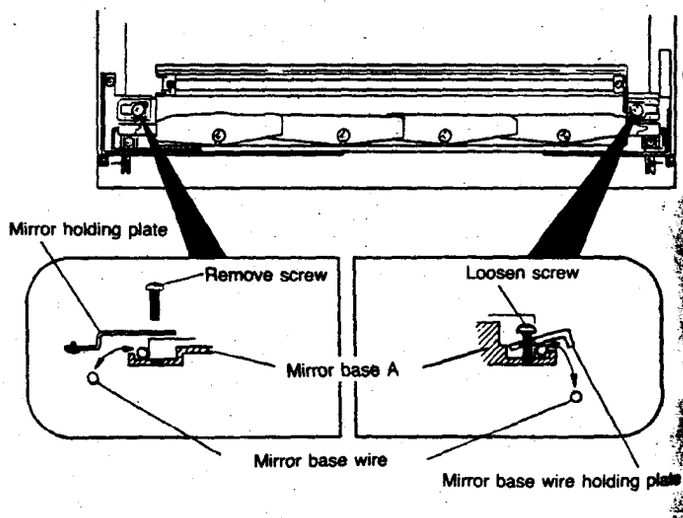
① Remove the original table glass.
② Open the front panel.
③ Remove the rear side, upper right panel.



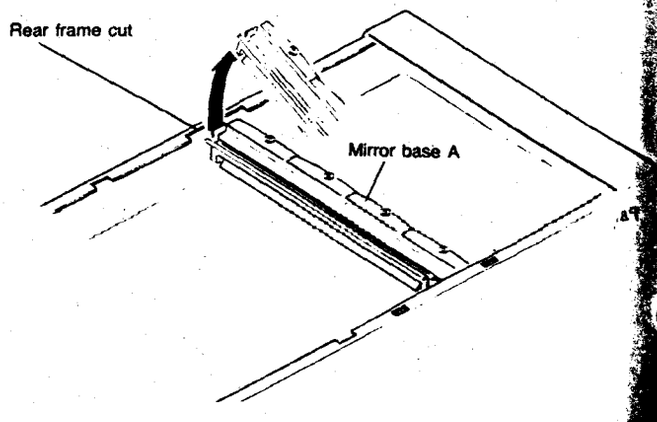
④ Unfasten two connectors between the optical system and the process unit.
⑤ Unlock the optical system lock lever by pushing the lever in direction A. Open up the optical system (direction B).
⑥ Support the optical unit with the support bar.

B. Removing mirror base A

① Remove each mirror holding plate located on mirror base A on both frame sides and the mirror base drive wire holding plate. Remove the mirror base drive wire from mirror base A wire groove.



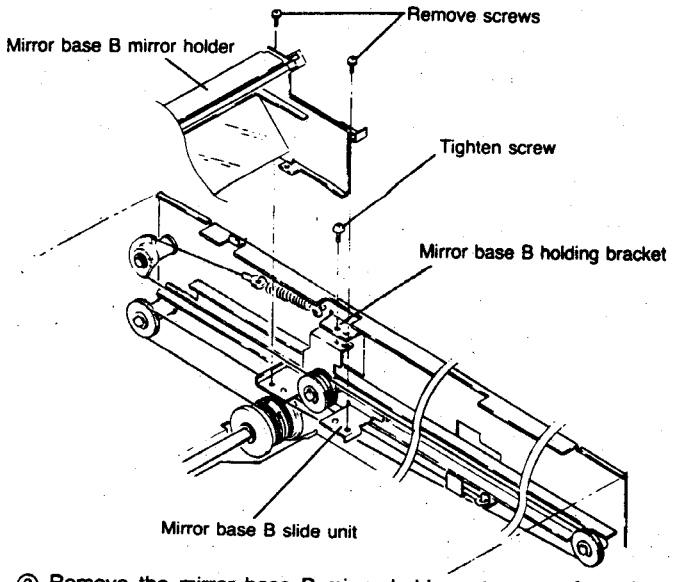
② Move mirror base A to the rear frame cut in the optical unit.



③ Remove mirror base A from the mirror base rail.

C. Removing mirror base B mirror holder

① Move mirror base B to the front and rear frame side cut out, and fix mirror base B to the front and rear frame side mirror base B holding plate with a screw.

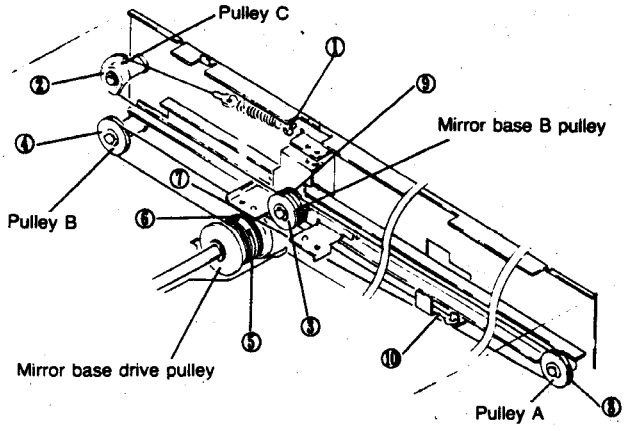


② Remove the mirror base B mirror holder set screws from the front and rear frame sides.
③ Remove the mirror base B mirror holder from the mirror base B slide unit.

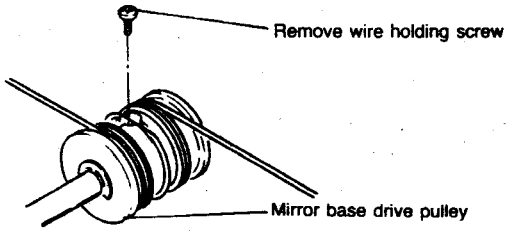
D. Removing the mirror base drive wire

Remove components in the following order.

① Remove the spring on one end of the mirror base wire from its hook on the mirror base B holding plate. The other end of the wire is held by a screw on the rear frame side.



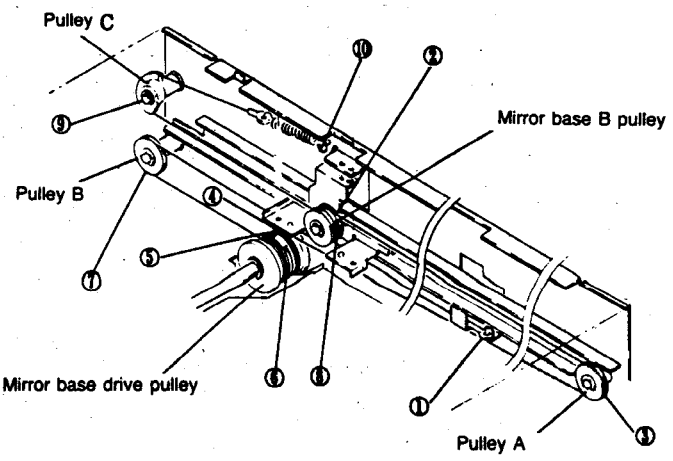
② Remove the mirror base drive wire in the order of pulley C, mirror base B pulley (inside), pulley B, and the mirror base drive pulley.
③ Remove the mirror base drive pulley wire securing screw.



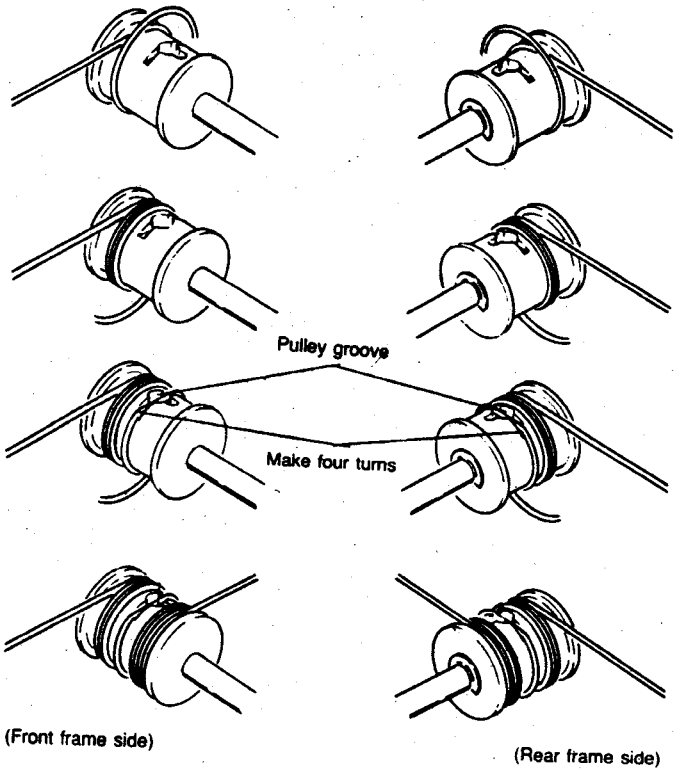
④ Remove the mirror base drive wire in the order of the mirror base drive pulley, pulley A, and mirror base pulley B.
⑤ Remove the mirror base drive wire from its hook on the optical system frame. The other end of the wire is held by a screw on the rear frame side.
(Do the same for the rear frame side.)

E. Stretching the mirror base drive wire

Stretch the wire in the following order.



① Hold the end of the mirror base drive wire with the spring to the hook on the optical system frame. Hold the other end of the wire with the screw on the rear frame side.
② Route the mirror base drive wire under the mirror base B slide plate and apply it to pulley B.
③ Apply the wire on pulley A and route it under the mirror base B slider, and make eight turns of the wire around the mirror base drive pulley. The fourth turn of the wire must rest in the groove of the pulley.



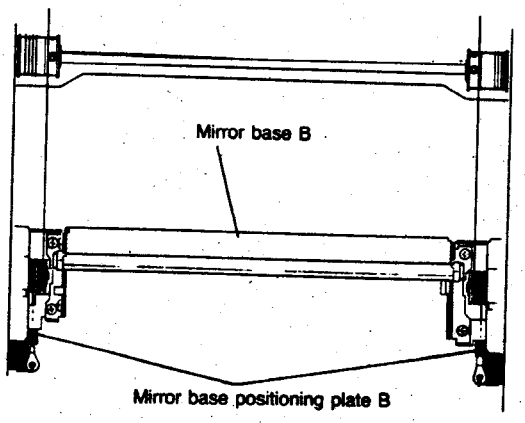
④ Apply the wire to pulley B and route it under the mirror base B slide unit.
⑤ Apply the wire to the mirror base B pulley and pulley C.
⑥ Hook the mirror base drive wire spring to the mirror base drive wire.
⑦ Hook the mirror base drive wire spring to the mirror base B holding hook and hold the other end with the screw on the rear frame side.
(Do the same for both frame sides.)

F. Adjusting the mirror base drive wire tension

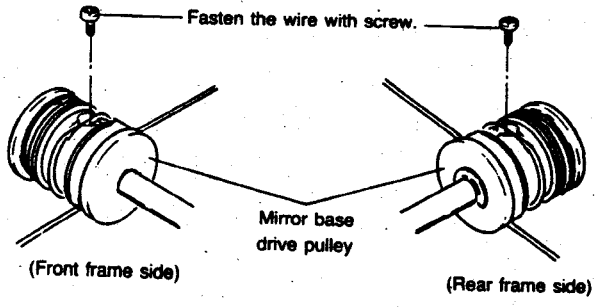
① Install the mirror base B mirror holder on the mirror base B slide unit.
② Remove the mirror base B slide unit from the mirror base B holding plate.
(Do the same steps ① and ② for both frame sides.)
③ Manually rotate the mirror base drive pulley to move the mirror base B for a few turns.

G. Securing the mirror base drive wire

① Manually move mirror base B until it comes in contact with the mirror base positioning plate B.



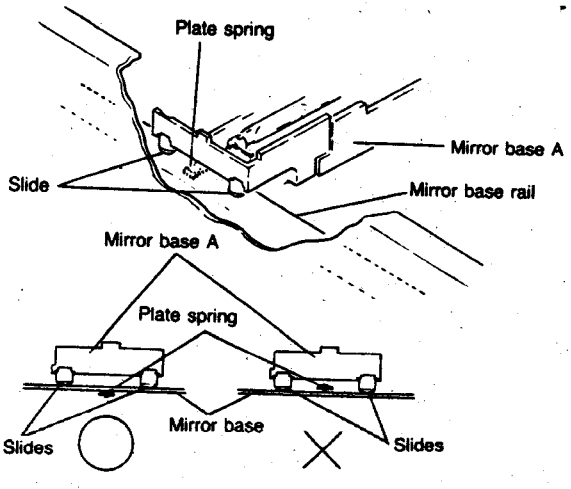
② Secure the second turn of the wire to the pulley with the screw inserted in the pulley groove.



③ Adjust the parallelism of the mirror base B, in reference to Paragraph 3-(2).

H. Reassembling mirror base A

① Move mirror base A to the location of the cut in the optical system rear frame and mount mirror base A on the mirror base rail.
On the mirror base A front frame side, install the mirror base rail as pictured below.



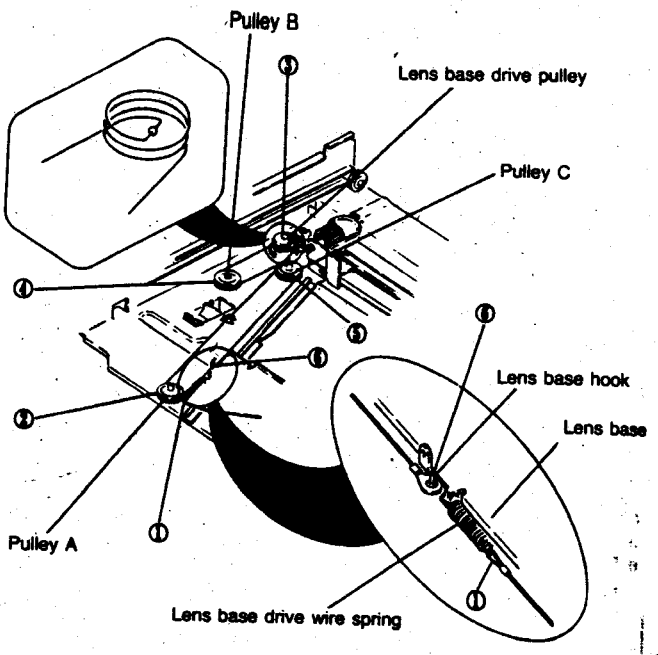
② Adjust the mirror base A parallelism, in reference to Paragraph 3-(3).

(3) Replacing the lens base drive wire (SF-7750 only)

① Remove the original table glass.
② Remove the lens cover.

A. Removing the lens base drive wire

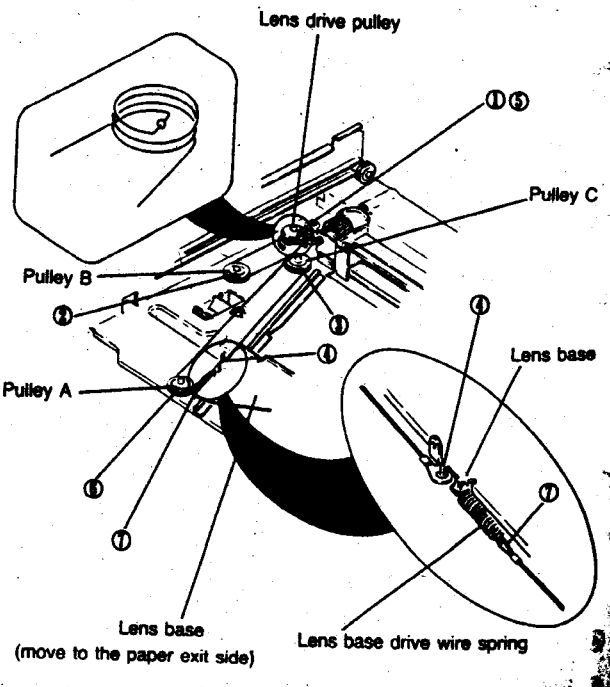
Remove the components in the order shown below.
① Unhook the lens base drive wire from the lens base drive wire spring.



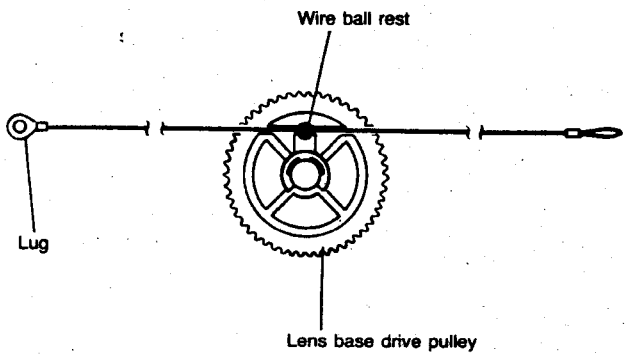
② Remove the lens base drive wire in the order of the lens base drive pulley, pulley A, and the pulley C.
③ Unfasten the lens base drive wire from the lens base hook.

B. Stretching the lens base drive wire

Stretch the wire in the following order.



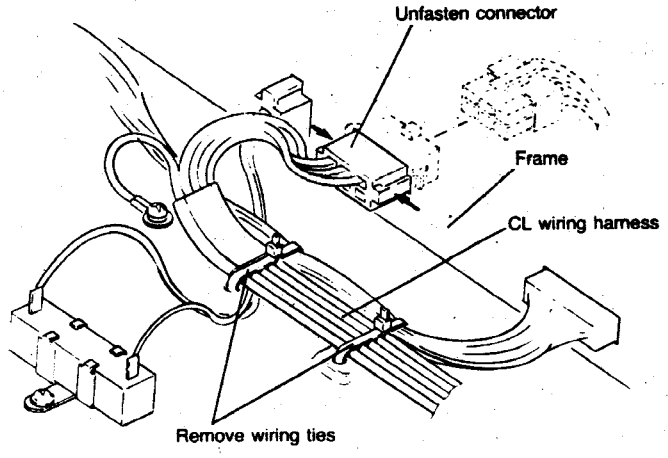
① Insert the lens base drive wire ball in the ball rest of the lens base drive wire pulley.



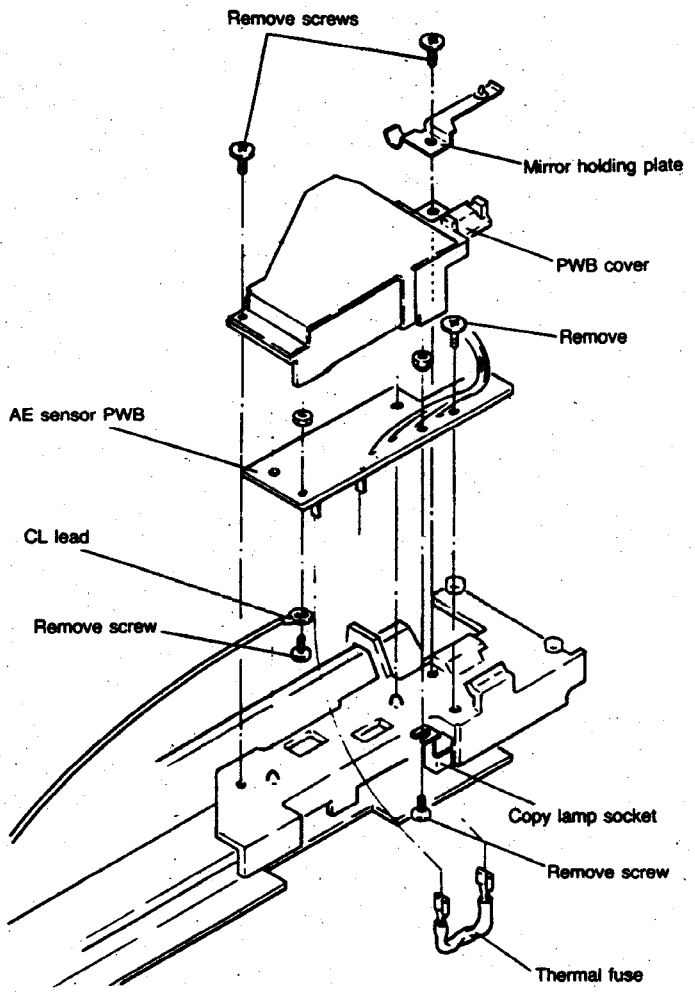
② Move the lens base all the way to the paper exit side, but the lens unit can not disengage from the lens guide rail.
③ Pull the one end of the lens base drive wire with the lug counterclockwise. Apply it to pulley B and pulley C, then tightly hold it on the mirror base hook.
④ Wind the other end of the wire around the lens base drive pulley clockwise starting from above and make three turns of the wire.
⑤ Apply the wire to pulley A and fasten it to the lens base drive wire spring.
⑥ Adjust the position of the mirror base cam, in reference to Paragraph 3-4.

(4) Replacing the CL wire harness

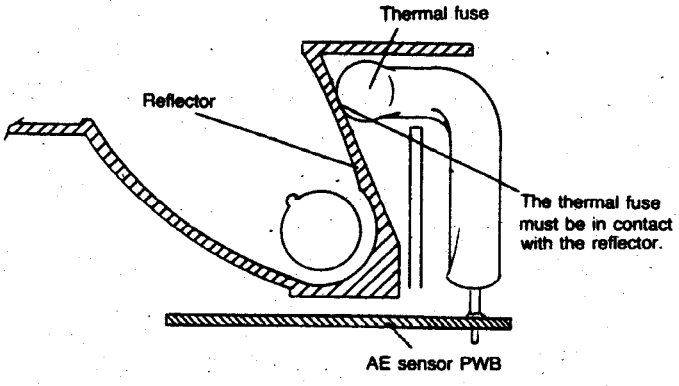
The CL wiring harness needs to be replaced at every 120, 000 copies.
① Remove the original table glass.
② Remove the display/operation unit.
③ Remove the CL wiring harness connector from the frame. The CL wiring harness is located on the optical system front frame side.



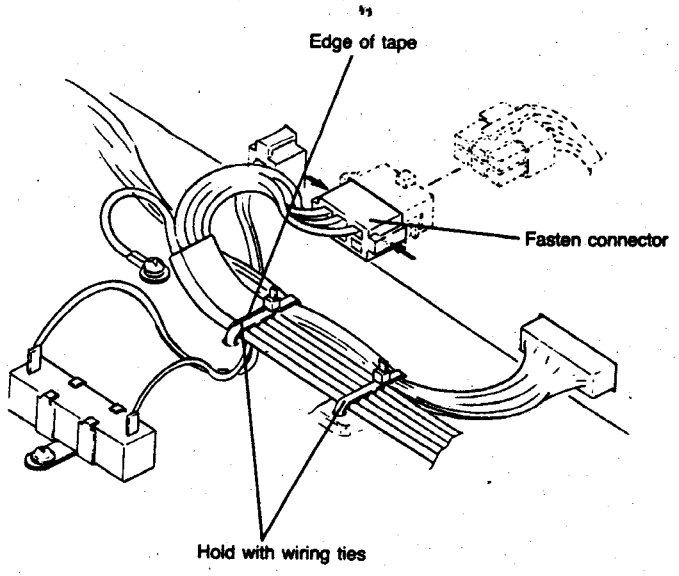
④ Remove the CL wiring harness wiring ties.
⑤ Remove mirror base A, in reference to Paragraph 4-(2)-B.
⑥ Remove mirror base A, PWB cover and mirror holding plate.



⑦ Remove the screw that holds the CL lead connected to the AE sensor PWB.
⑧ Remove the front frame side AE sensor PWB copy lamp socket holding screw.
⑨ Remove the screw from the AE sensor PWB with the CL lead from mirror base A.
⑩ Remove the thermal fuse from the AE sensor PWB.
⑪ Install the thermal fuse on the AE sensor with a new CL wiring harness.
⑫ Wipe the surface of the AE sensor with a cloth slightly dampened with alcohol or water.
Do not wipe with a dry cloth it may attract more dust.
⑬ Install the AE sensor PWB on mirror base A. Ensure that the thermal fuse is in contact with the reflector.



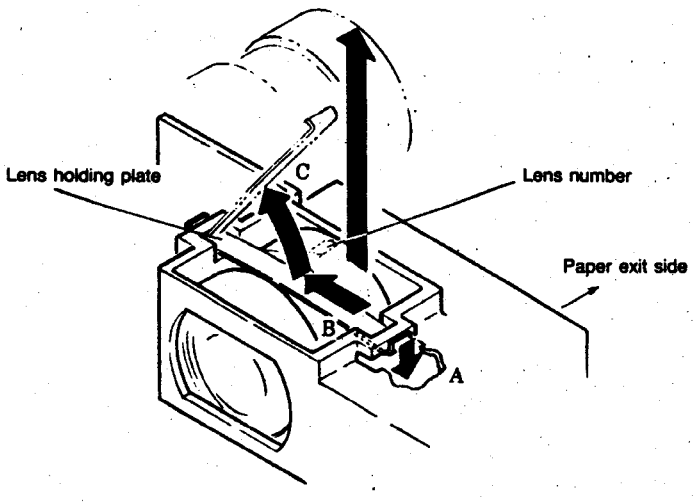
⑭ Hold the CL lead and the front frame side copy lamp socket on the AE sensor PWB.
⑮ Install the PWB cover, mirror holding plate, and the wiring harness guide on mirror base A.
⑯ Install the CL wiring harness and the connector on the optical system front frame side.
⑰ Secure the CL wiring harness to the optical system chassis using wiring ties. Place wiring ties in reference to the edge of the tape wound around the CL wiring harness.



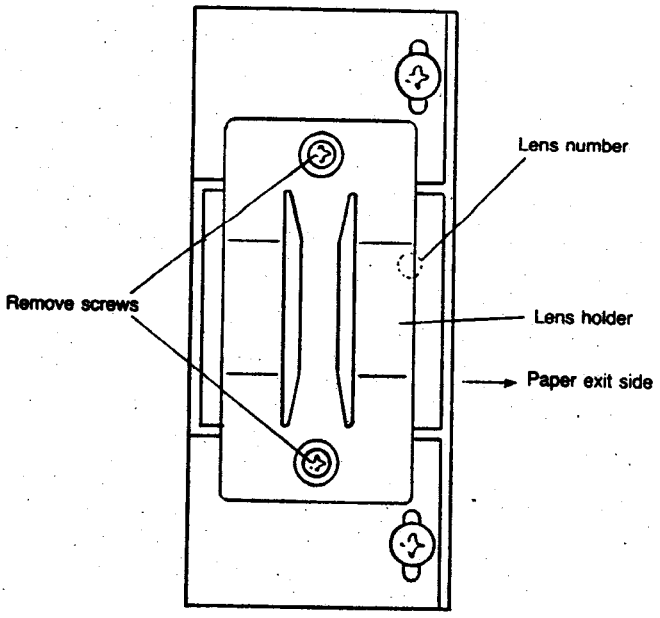
⑱ Mount the mirror base A on the mirror base rail, in reference to Paragraph 4-(2)-H.
⑲ Adjust the parallelism for mirror base A, in reference to Paragraph 3-(3).

(5) Replacing the lens

A. Removing the lens
① Remove the original table glass.
② Remove the lens cover.
③ Remove the lens holder and remove the lens from the lens holder.
(SF-7750)



a. Push the lens holder edge in direction A, move it in direction B, then pull it out in direction C.
b. Lift up the lens to remove.
(SF-7700)

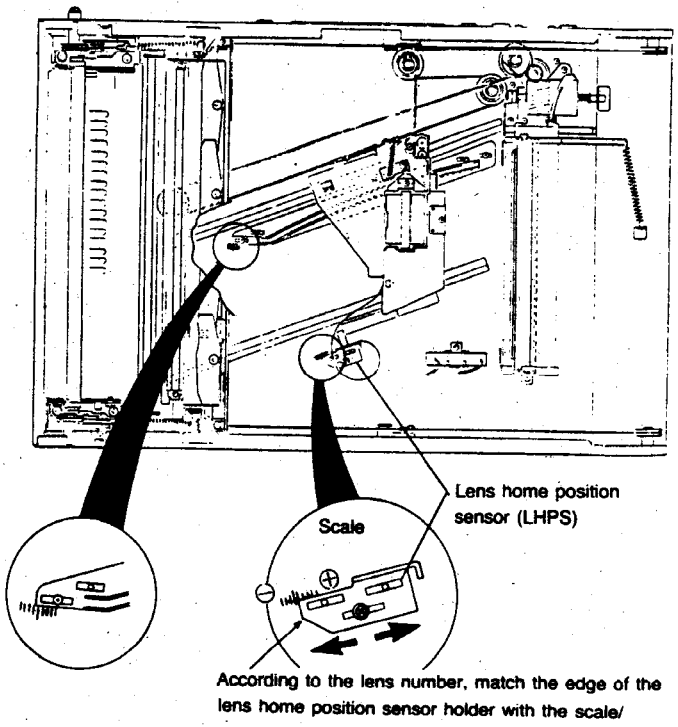


a. Remove the lens holder and lift up the lens.

B. Reassembling the lens
① Mount the new lens in the lens holder and secure it.

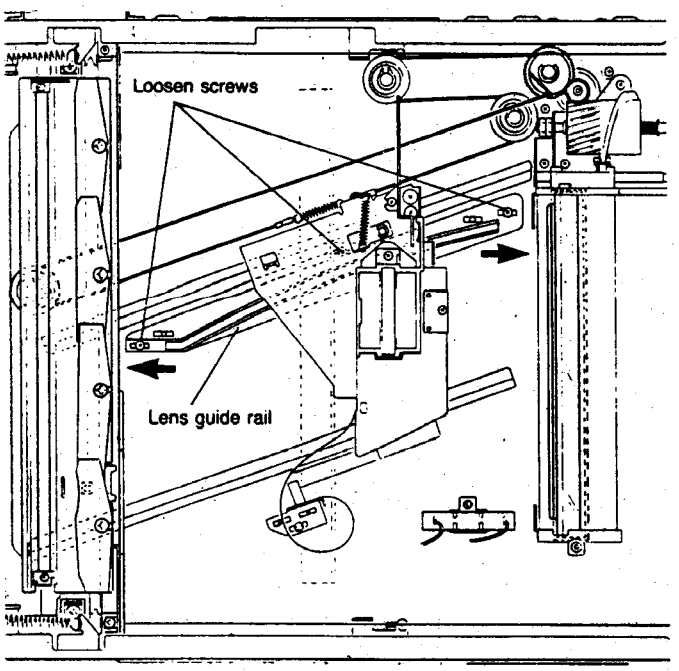
NOTE: The lens must be installed in its proper direction. The side with the lens number must be on the paper exit side.

C. Adjusting the lens home position sensor location (SF-7750 only)
① Loosen the lens home position sensor holder screw.
② Match the position of the lens home position sensor with the lens number. As there is a scale on the lens home position sensor mounting area, match the edge of the sensor holder with the lens number.
③ Secure the lens home position sensor holder.

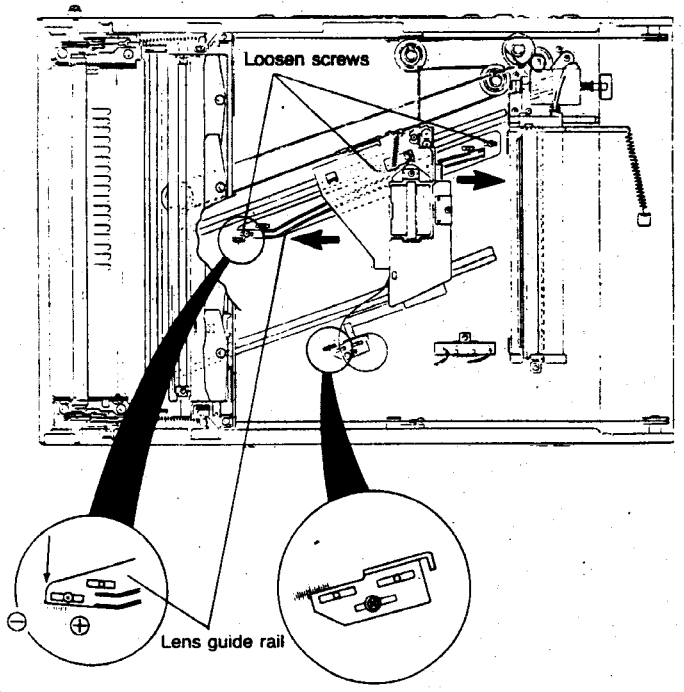

Lens home position sensor (LHPS)
Scale
According to the lens number, match the edge of the lens home position sensor holder with the scale/

D. Adjusting the lens guide rail position (SF-7750 only)

① Loosen three screws that hold the lens guide rail.



② Slide the lens guide rail in the arrow direction and match it to the lens number.



E. Entering the lens number

Because each lens has a variation in its focal distance, lens moving distance in the magnification mode must be appropriate to the focal distance of an individual lens.

If the lens moves by the same distance in the magnification mode disregarding the variation in the individual lens, it will adversly affect the copy magnification ratio.

To prevent this, the focal distance (lens number) of the individual lens is stored in memory with test command 77. This moves the lens according to the appropriate focal distance of the lens, to obtain a copy in the exact magnification ratio.

① Execute test command 77 in the following manner and preset the number representing the lens number.
Press C → P → 0 → P → 7 → 7 → PSW (ready lamp turns on) → ■ → ■ (currently stored preset value displayed) → □ → □ (new preset value) → PSW → preset complete and the ready lamp goes out.

Lens number	Test command 77 preset value	Lens number	Test command 77 preset value
−4.5	1	0	10
−4	2	+0.5	11
−3.5	3	+1	12
−3	4	+1.5	13
−2.5	5	+2	14
−2	6	+2.5	15
−1.5	7	+3	16
−1	8	+3.5	17
−0.5	9	+4	18

F. Adjusting the focus

Adjust the focus, in reference to Paragraph 3-(7) and (8).

G. Adjusting the horizontal optical axis

Adjust the horizontal optical axis, in reference to Paragraph 3-(9).

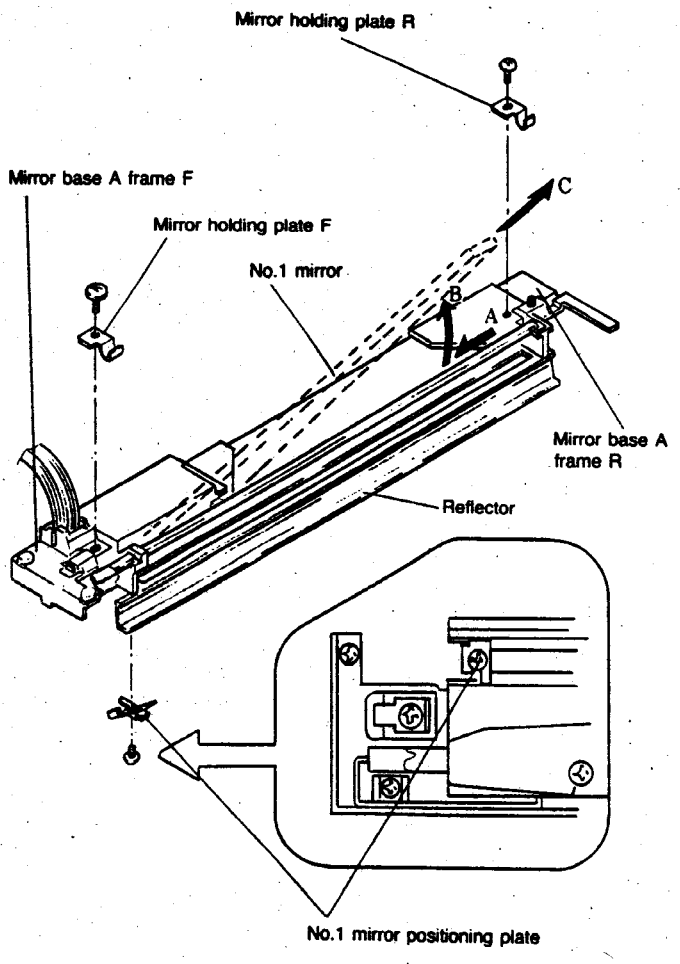
(6) Replacing mirrors

A. No.1 mirror

① Remove mirror base A from the mirror base rail, in reference to Paragraph 4-(2)-B.

② Remove the No.1 mirror positioning plate, mirror holding plates F and R.

NOTE: Leave the No.1 mirror positioning plate setscrews untouched to prevent a copy skew. These screws can not be adjusted on field.



③ Slide the No.1 mirror in arrow direction A, lift it up in direction B, then pull it out in arrow direction C.

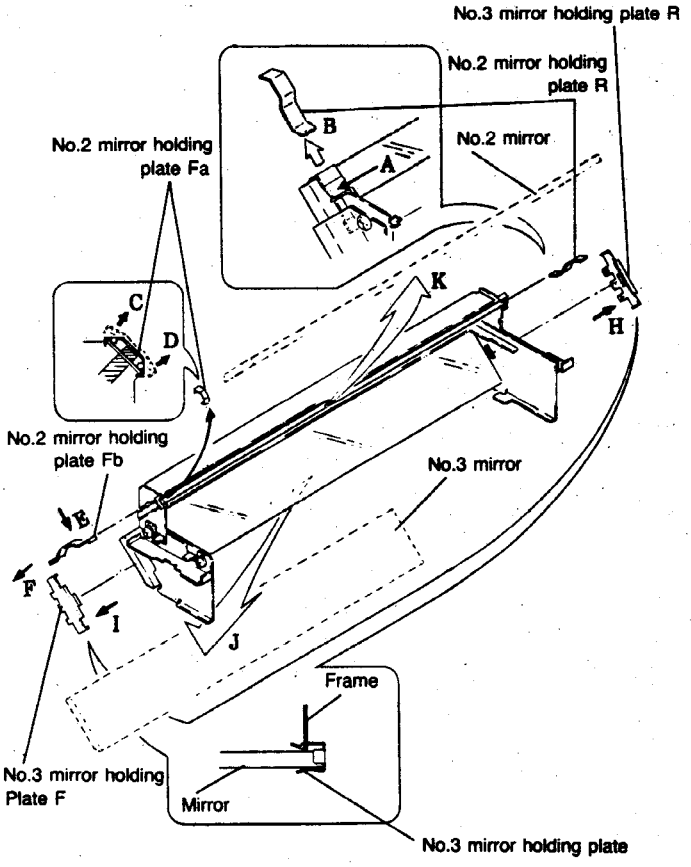
NOTE:
- If there is any problem in the mirror base A frame F, R, reflector, mirror positioning plate, or its setscrew, the entire mirror base A unit must be replaced, because components in the unit can only be factory adjusted.
- After replacing mirror base A on the mirror base rail, install mirror base A with its coated surface facing up.
- Exert cared not to scratch the coated mirror surface.

B. No.2 and No.3 mirrors

a. No.2 mirror

① Remove the mirror base B mirror holder from the mirror base B slide unit, in reference to Paragraph 4-(2)-C.

② Press the mirror base B and the No.2 mirror holding plate R in arrow direction A, and slide them in arrow direction B to remove.



③ Open up mirror base B and the No.2 mirror holding plate Fa in the arrow directions C and D, and remove.

④ Press the mirror base B and the NO.2 mirror holding plate Fb in the arrow directions E, and slide them in arrow direction F to remove.

⑤ Remove the No.2 mirror from the mirror holder in the arrow direction K.

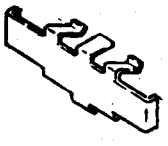
NOTES:
- When installing the elongated hole of the mirror holding plate Fb must be firmly engaged to the mirror holder frame. And, make sure that the mirror holding plate Fa is firmly engaged to the mirror holder frame.
- When installing the mirror, the coated surface of the mirror must face down.

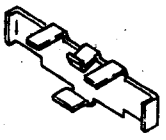
b. No.3 mirror

① Slide the No.3 mirror holding plates F and R towards the front and rear frame sides (arrowhead I and H) to remove.

② Remove the No.3 mirror from the mirror holder in arrow direction J.

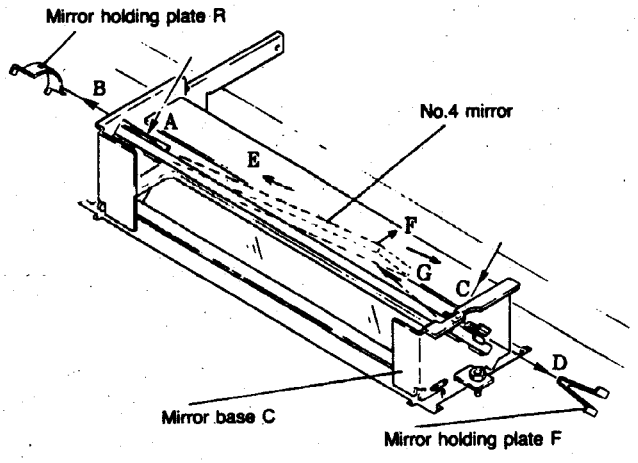
NOTES:
- When installing the mirror, make sure that the mirror holding plates F and R are firmly engaged.
- Install the mirror with its coated surface facing down.
- Do not install the No.3 mirror holding plate F in place of plate R, as they differ in shape.


Mirror holding plate R


Mirror holding plate F

C. No.4 mirror

① Press the mirror holding plate R of the No.4 mirror located on the mirror base C in arrow direction A and slide it in the direction of B to remove.



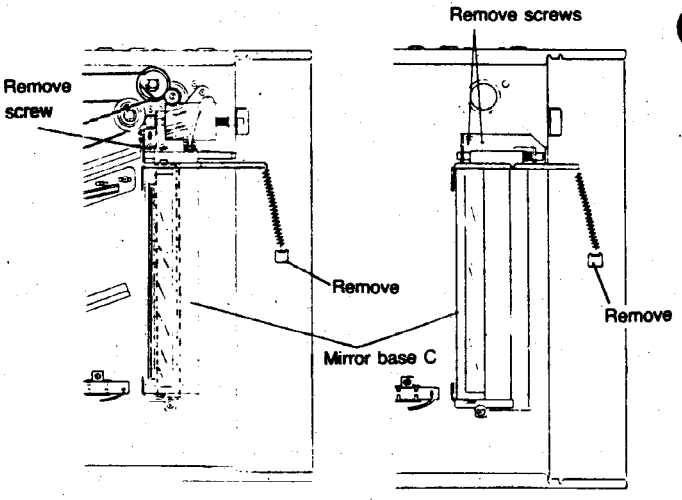
② Press the No.4 mirror and the mirror holding plate F in arrow direction C, and slide them in arrow direction D to remove.

③ Slide the No.4 mirror in arrow direction E, lift it up in arrow direction F, then pull it out in arrow direction G.

NOTES:
- When installing the mirror, make sure that the dent in the mirror holding plate F is firmly engaged to the mirror base C frame. Also, make sure that the elongated hole in the mirror holding plate R is firmly engaged to the mirror base C frame.
- The mirror must be installed with its coated surface facing down.

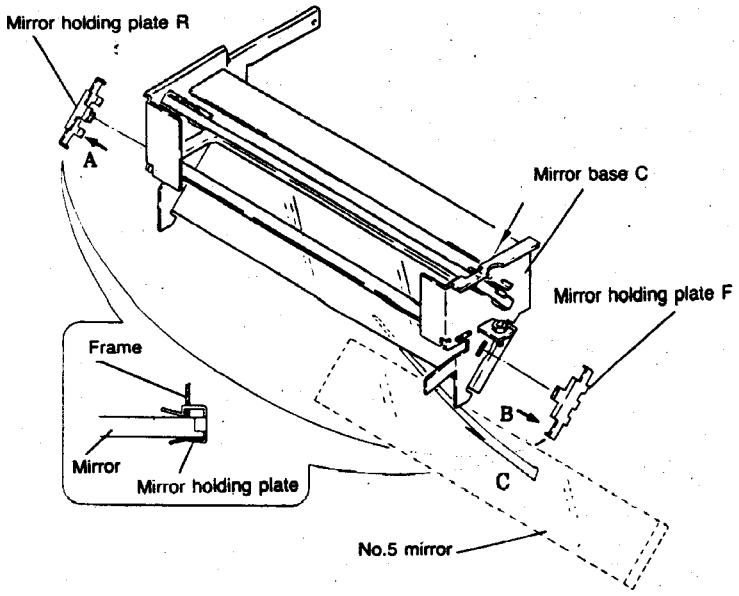
D. No.5 mirror

① Remove mirror base C.



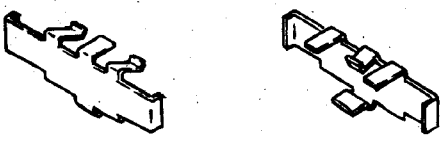
(SF－7750) (SF－7700)

② Slide the No.5 mirror holding plates F and R in the arrow direction of A and B to remove them.



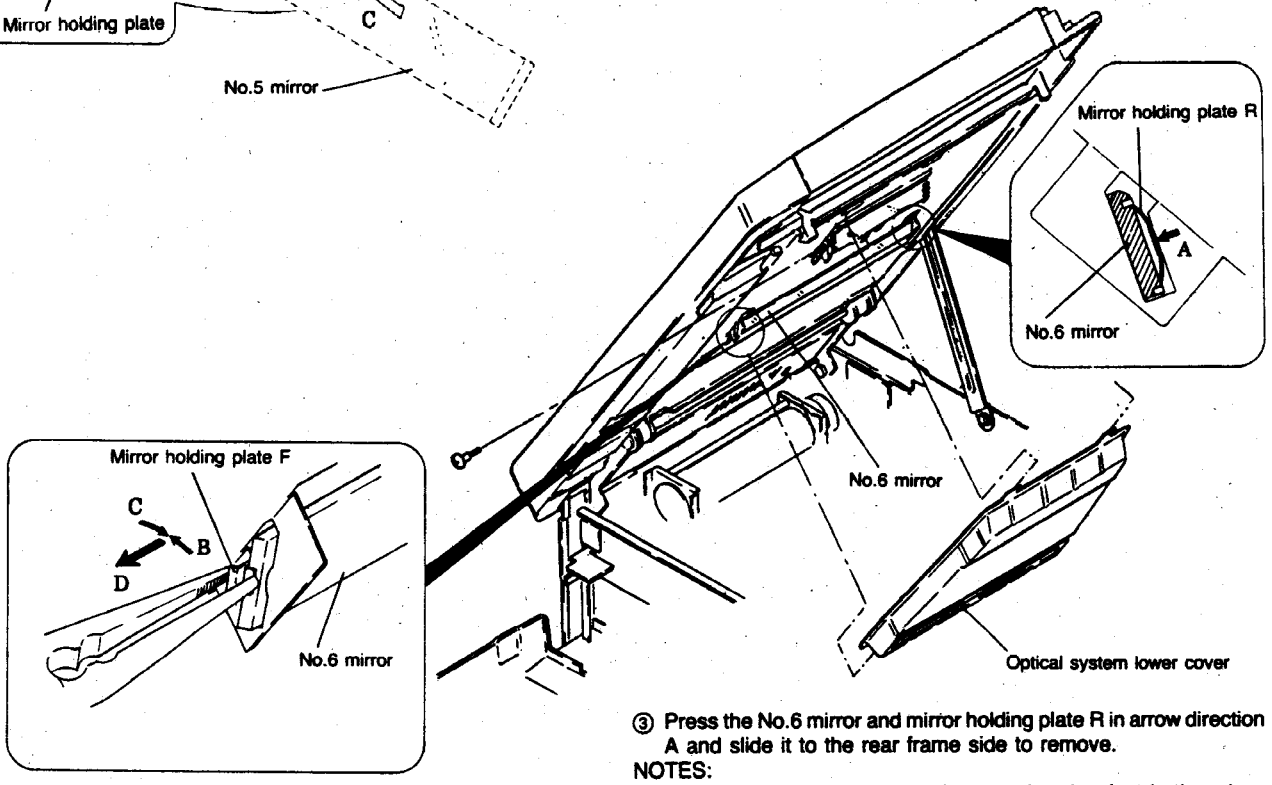
③ Remove the No.5 mirror from mirror base C in arrow direction C.
④ After replacing the No.5 mirror, install mirror base C on the optical system chassis and adjust the mirror base C parallelism, in reference to Paragraph 3-(4).

NOTES:
- When installing the mirror, make sure that the mirror holding plate is firmly engaged to the mirror base C frame.
- The mirror must be installed with its coated surface facing up.
- Do not install the No.5 mirror holding plate F in place of plate R, as they differ in shape.



E. No.6 mirror

① Open the optical system, in reference to Paragraph 4-(2)-A.
② Remove the optical system lower cover.



③ Press the No.6 mirror and mirror holding plate R in arrow direction A and slide it to the rear frame side to remove.

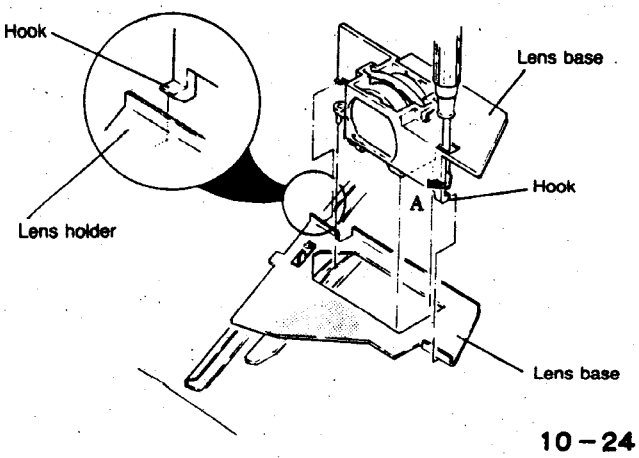
NOTES:
- When installing the mirror, make sure that the dent in the mirror holding plate F is firmly engaged to the optical system frame.
- The mirror must be installed with its coated surface facing down.

(7) Lens holder

(SF-7750)

A. Removing the lens holder

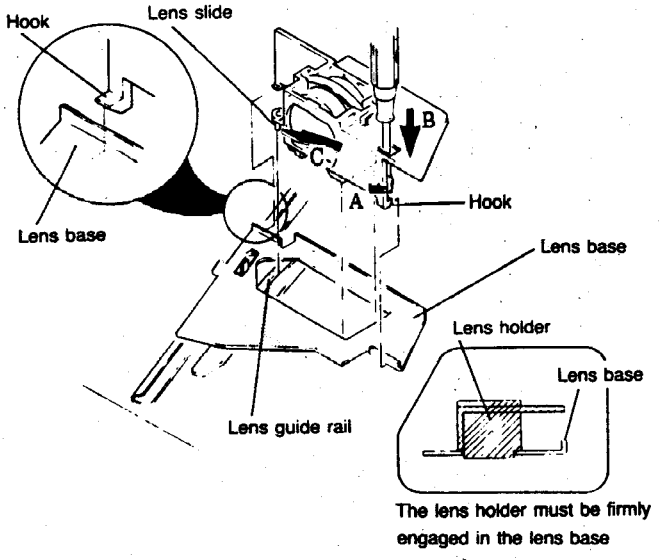
① Push the front frame side lens holder hook in arrow direction A using a screwdriver and unlock the lens holder hook from the lens base.



② Unlock the rear frame side lens holder hook from the lens base and lift up the lens holder to remove.

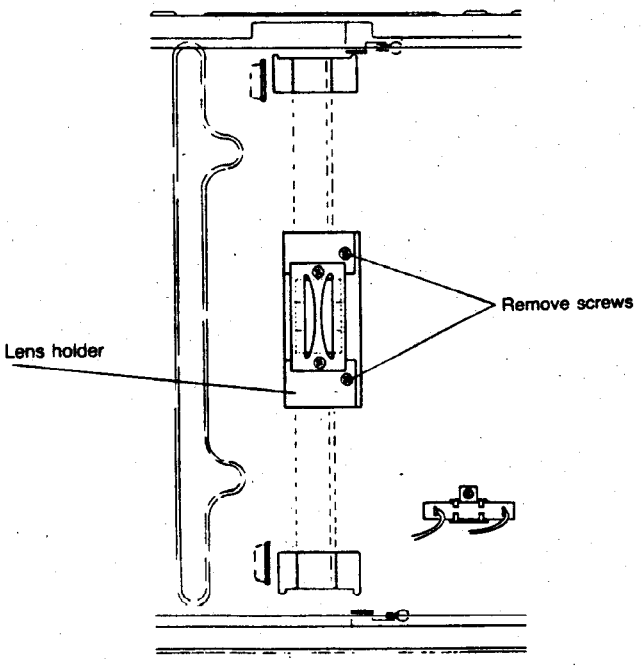
B. Reassembling the lens holder

① Put the rear frame side lens holder hook into engagement with the lens base.
② Set the lens slider onto the lens guide rail groove.



③ Press the front frame side lens holder hook in arrow direction A with a screwdriver and push the lens holder in the arrow direction.
④ Press the lens base shadowed portion and slide the lens holder in arrow direction C with some force to set it in the lens base.
⑤ Manually rotate the lens base drive gear and move the lens base to check that it moves smoothly in both directions.

(SF-7700)
Remove two lens holder screws and remove the lens holder from the optical system chassis.

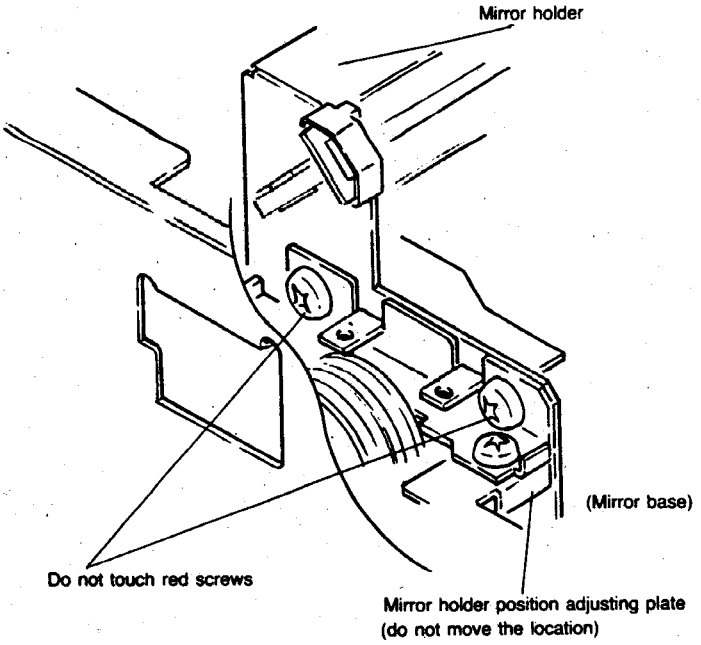


NOTE: Adjust the horizontal optical axis after installation of the lens, in reference to Paragraph (3)-9.

(8) Miscellaneous

A. Mirror base B components

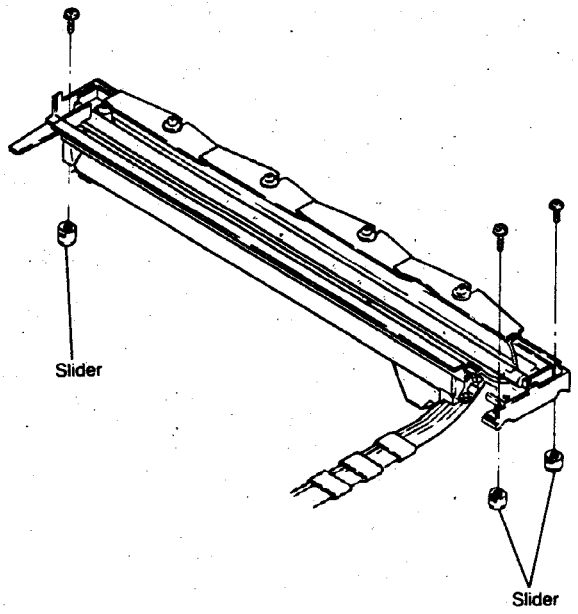
If there is trouble in the mirror holder of mirror base B, mirror holder positioning plate, the whole mirror base B unit must be replaced. Do not move the location of the mirror holder positioning plate secured with the red screw.



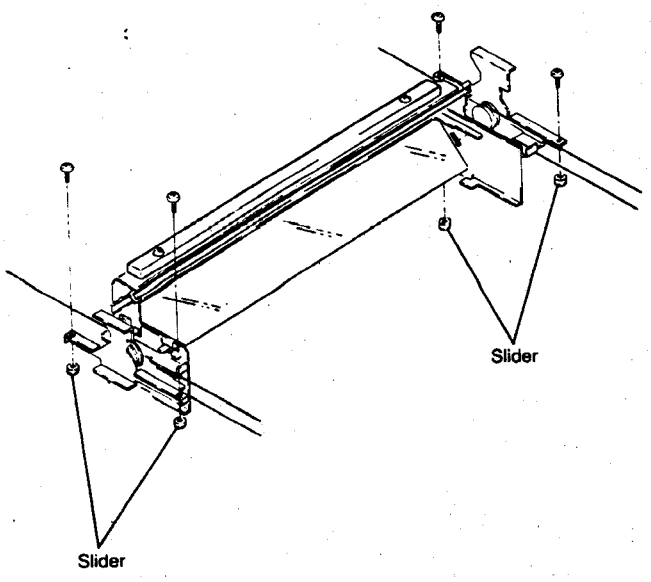
B. Mirror base slider

Three sliders are used in mirror base A and four in mirror base B. When a mirror base slider has to be replaced, they must all be replaced on that mirror base at the same time. Service parts mirror base slider (CSLI-0057FC32) contains four pieces of sliders. Exchanging only one piece may result in mirror base tilt, loose installation, image blur, or image skew.

(Mirror base A)



(Mirror base B)



C. AE sensor cleaning

The AE sensor must be cleaned every time machine maintenance is conducted.

① Blow air through mirror base A AE sensor measuring slit with an air blower to clean the surface of the AE sensor.

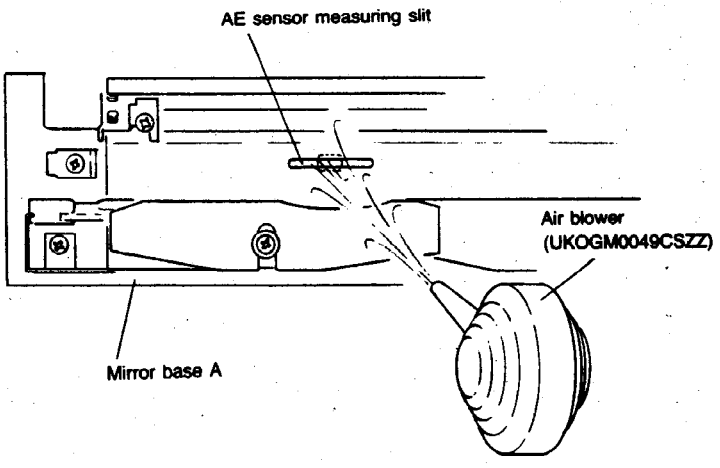


CHART FOR PSC-a, and PSC-b, SET NUMBER

L1 = the lead edge image loss in the enlargement mode (x 1.41)
L2 = the lead edge image loss in the reduction mode (x 0.64)

A = Number to be set (PSC-a)
B = Number to be set (PSC-b)

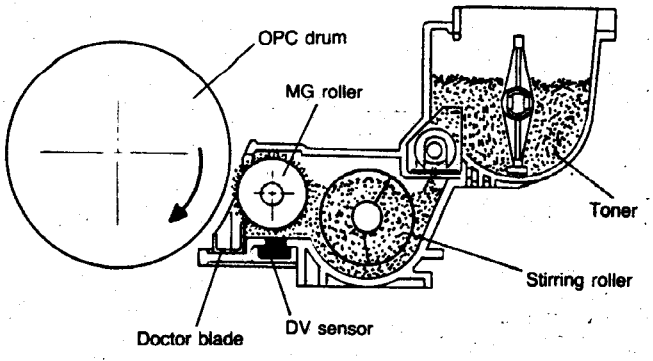
L1 / L2		6	7	8	9	10	11	12	13	14	15	16	17	18	19
4.5	A	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	30	26	22	18	14	11	7	3						
5.0	A	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	38	34	30	27	23	19	15	11	8	4					
5.5	A	6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	46	42	39	35	31	27	24	20	16	12	8	5	1			
6.0	A		6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	55	51	47	43	39	36	32	28	24	21	17	13	9	5	2		
6.5	A			6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	63	59	55	52	48	44	40	36	33	29	25	21	18	14	10	6	2	
7.0	A				6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	71	67	64	60	56	52	49	45	41	37	33	30	26	22	18	14	11	7	3
7.5	A					6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	80	76	72	68	64	61	57	53	49	45	42	38	34	30	27	23	19	15	11	8	4
8.0	A						6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B	88	84	80	77	73	69	65	61	58	54	50	46	42	39	35	31	27	24	20	16	12	8	5	1
8.5	A							6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94		
	B	96	92	89	85	81	77	73	70	66	62	58	55	51	47	43	39	36	32	28	24	21	17	13	9	5	2
9.0	A								6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94			
	B		97	93	89	86	82	78	74	70	67	63	59	55	52	48	44	40	36	33	29	25	21	18	14	10	6
9.5	A									6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94		
	B			98	94	90	86	83	79	75	71	67	64	60	56	52	49	45	41	37	33	30	26	22	18	15	
10.0	A										6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94	
	B				98	95	91	87	83	80	76	72	68	64	61	57	53	49	46	42	38	34	30	27	23		
10.5	A											6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B										95	92	88	84	80	77	73	69	65	61	58	54	50	46	43	39	35	31
11.0	A												6	12	18	24	30	35	41	47	53	59	65	71	77	83	89	94
	B												96	92	89	85	81	77	74	70	66	62	58	55	51	47	43	40
11.5	A													6	12	18	24	30	35	41	47	53	59	65	71	77	83	89
	B													97	93	89	86	82	78	74	71	67	63	59	55	52	48	
12.0	A														6	12	18	24	30	35	41	47	53	59	65	71	77	83
	B															98	94	90	86	83	79	75	71	68	64	60	56	
12.5	A															6	12	18	24	30	35	41	47	53	59	65	71	77
	B																				95	91	87	83	80	76	72	68	64
13.0	A																6	12	18	24	30	35	41	47	53	59	65	71
	B																						95	92	88	84	80	77	73
13.5	A																	6	12	18	24	30	35	41	47	53	59	65
	B																							96	92	89	85	81

[11] DEVELOPER UNIT

1. General description

An electrostatic latent image is formed on the drum surface and toner is applied over the latent image to change it to a visible image. Toner is charged by friction with the carrier (developer by the stirring roller within the developer unit. The toner is charged positive and the carrier negative.

The latent image area not exposed by light is charged negative. The toners positive potential is attracted to that area.



A bias potential of −230VDC is applied to the MG roller from the bias PWB during the developing process.

2. Adjustments

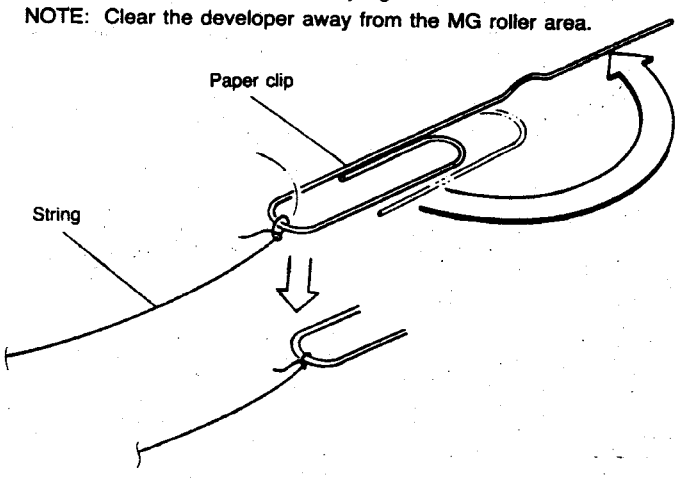
(1) Main pole adjustment

The trouble described next may occur if the DV doctor blade was improperly adjusted.

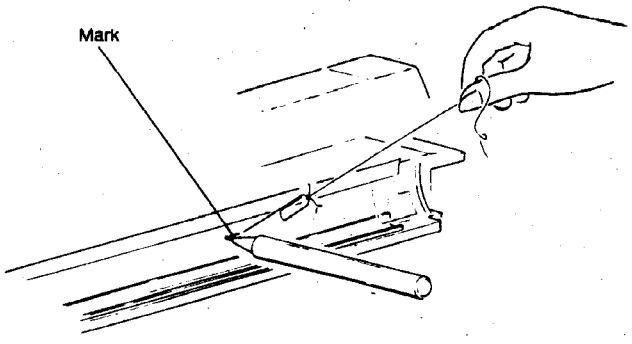
- Lack of copy density
- Toner dusting

① As illustrated in the figure below, stretch one end of a paper clip and tie the other end with a string.

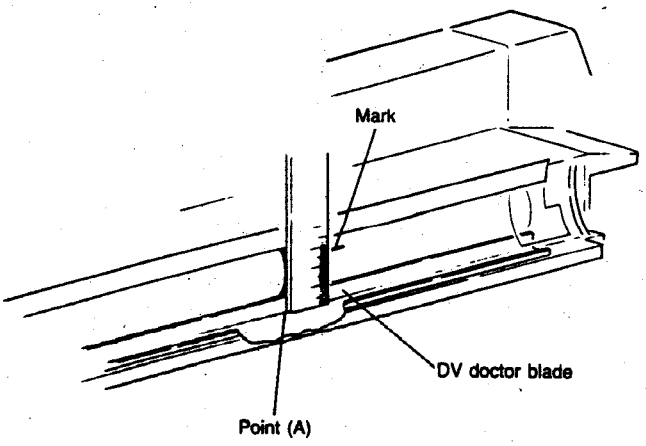
NOTE: Clear the developer away from the MG roller area.

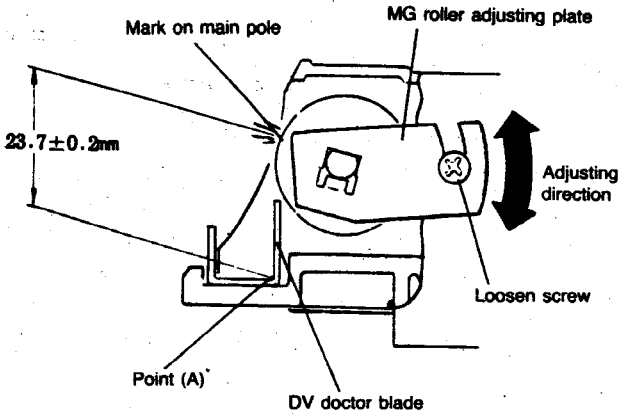


② Hold the string and bring the paper clip close to the MG roller.
③ Mark the surface of the MG roller sleeve where the clip made contact with the MG roller.



④ Measure the distance between the mark and point (A) on the DV doctor blade. Make sure if the distance is within 23.7±0.2mm. If not, loosen the MG roller adjusting plate screw and move it to adjust. Then, repeat steps ② to ④ again, to check the adjustment.





⑤ Tighten the MG roller adjusting plate screw.

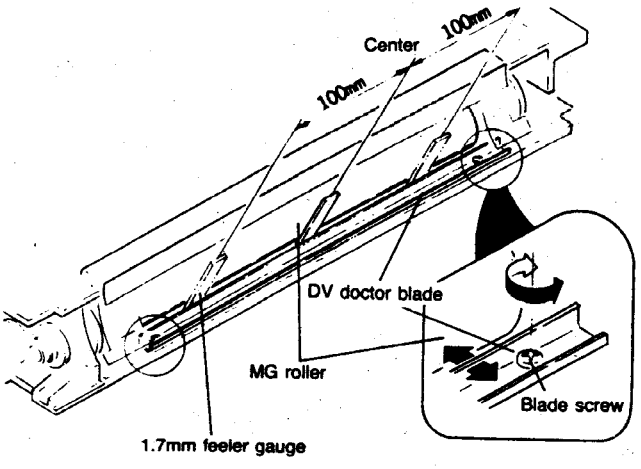
(2) DV doctor blade to MG roller gap adjustment

This adjustment must be done after the completion of the main pole adjustment. Reverse sequence is not permitted.

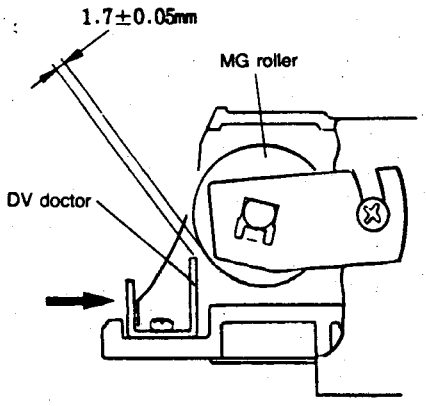
The trouble described next may occur if the DV doctor blade was improperly adjusted.

- Lack of copy density
- Background on the copy
- Toner dusting

① Loosen two DV doctor blade screws located within the DV doctor blade.
② Insert one each of 1.7mm feeler gauges between the MG roller and the DV doctor blade, each one 100mm away from the center of the developer unit (see figure below).
③ Tighten the DV doctor blade screws while pressing the DV doctor blade in the arrow direction.



④ Make sure that the gaps between the MG roller and the DV doctor are 1,7±0.05mm at the center and at both 100mm locations from the center.

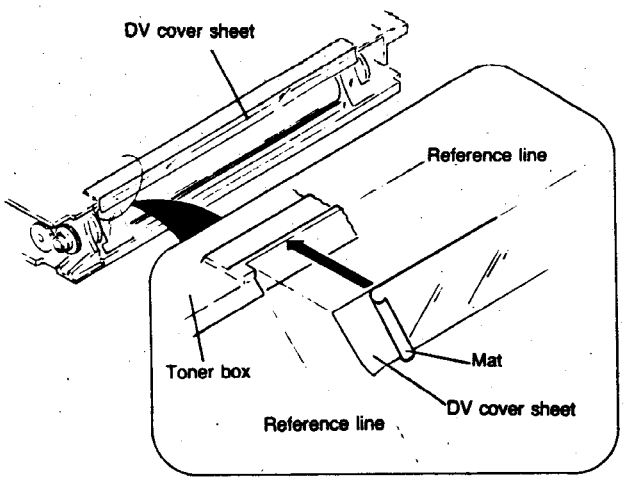


3. Major parts replacement and installation

(1) DV cover sheet

The DV cover sheet must be replaced every 120,000 copies.

① Remove the DV cover sheet from the DV toner box which is bonded with double tack tape.
② Bond a new DV cover sheet with mat as illustrated in the figure.

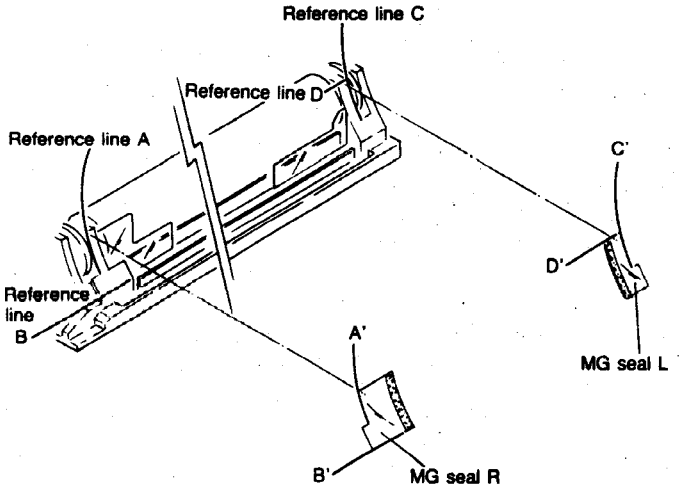


③ Remove the mat from the DV cover sheet.

MG seals, L and R

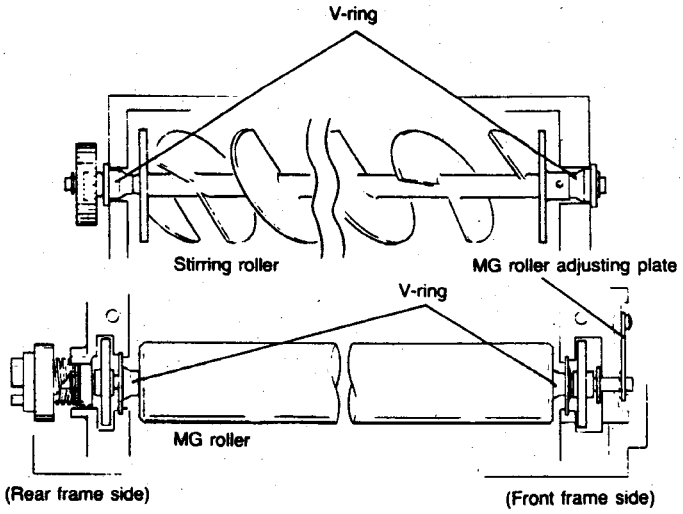
The seals must be replaced every 120,000 copies.

① Remove the toner box from the developer unit.
② Bond the MG seals as shown in the figure below, in reference to A' → A, B' → B, C' → C, and D' → D.



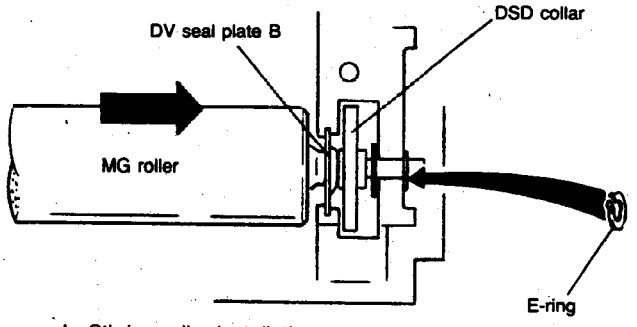
(2) V-ring installation

Note the direction of V-ring installation and install them as shown in the figure.



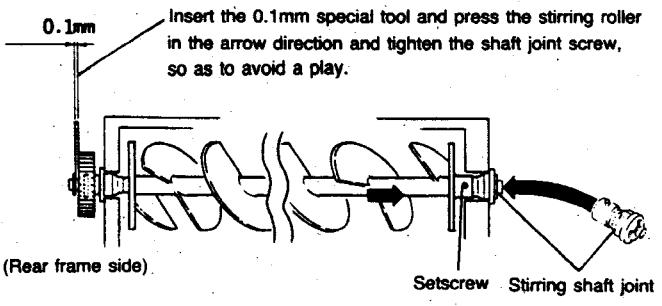
[MG roller and stirring roller installation precautions]

a. MG roller installation
- Install the DSD collar with the shorter flange facing inside.
- Install the DV seal plate B with the protrusion facing outside.
- When securing with the front frame side E-ring, press the MG roller in the arrow direction and fix it without end play.



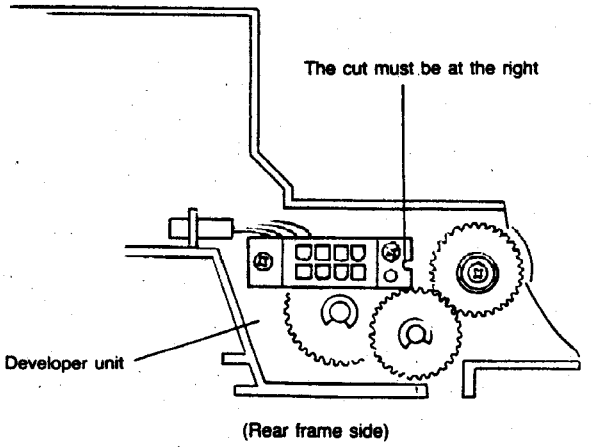
b. Stirring roller installation

Fasten the shaft junction of the stirring roller so that a play in axial direction should be within 0.1mm.


0.1mm
Insert the 0.1mm special tool and press the stirring roller in the arrow direction and tighten the shaft joint screw, so as to avoid a play.
(Rear frame side)
Setscrew
Stirring shaft joint

(3) Developer unit connector installation

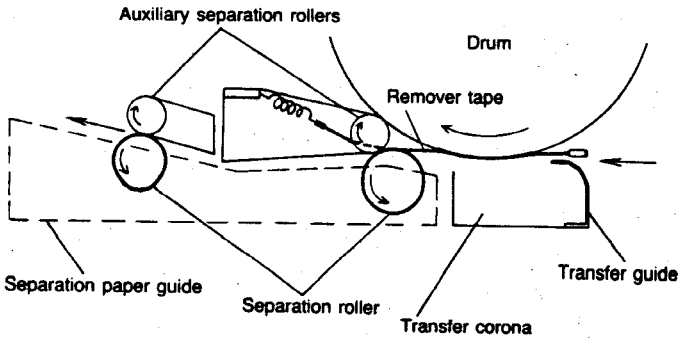
Install so that the cut in the connector is at the right.



[12] SEPARATION UNIT

1. General description

(View)



Copy paper is separated from the drum using the remover tape, separation rollers and auxiliary separation rollers.
The remover tape needs to be replaced every 40,000 copies.

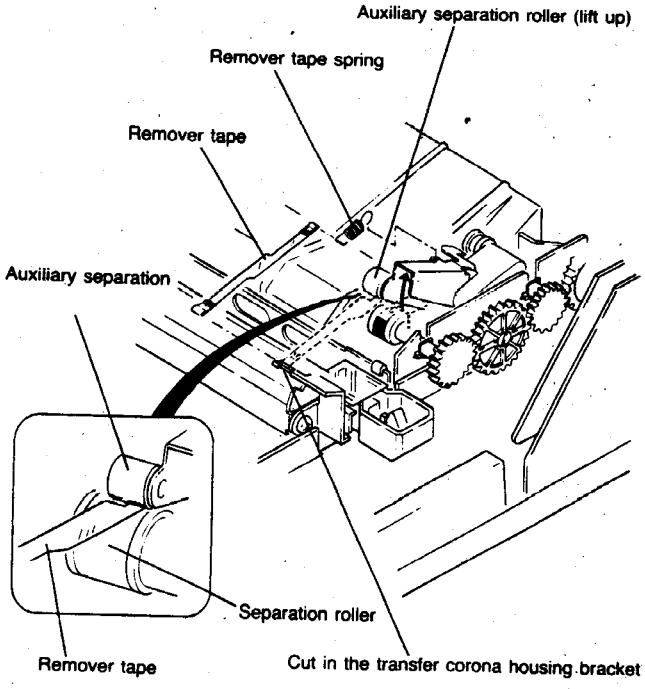
2. Major parts removal

A. Remover tape

① Open the frames.
② Remove the remover tape spring and the remover tape from the cut in the corona housing bracket.

NOTE: Pay attention not to deform the angle of the transfer corona housing.

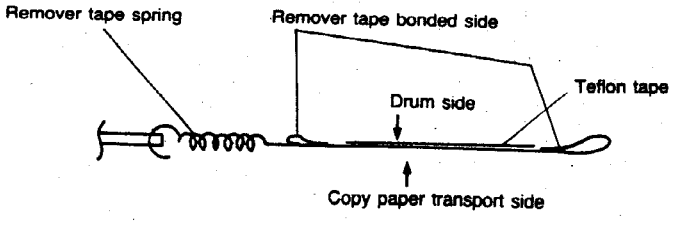
③ Lift up the auxiliary separation roller and take out the remover tape.



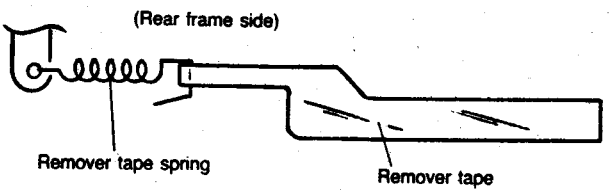
(Installation precautions)

- Install the remover tape as shown below.

A teflon tape is bonded on the loop back side.



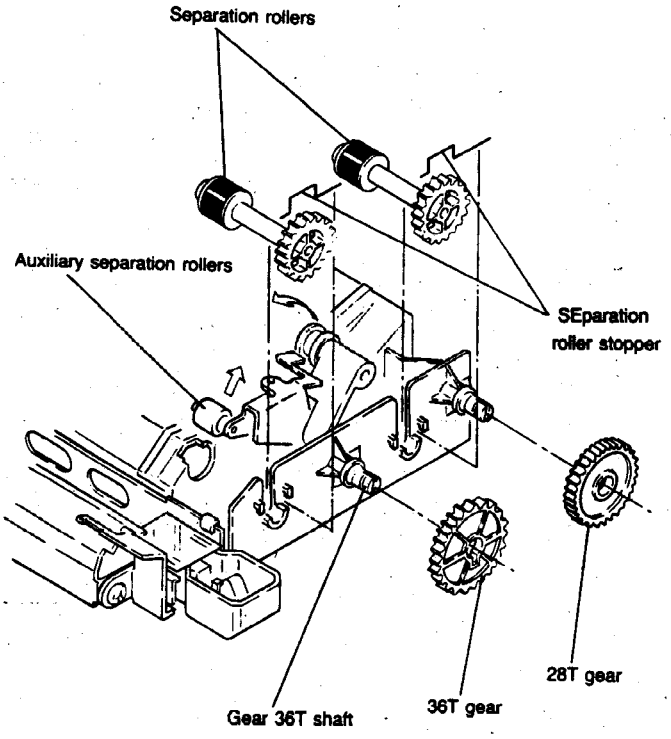
- Note the direction of the remover tape tension spring.



- Make sure that the remover tape is engaged in the cut of the auxiliary separation roller.
- The tape should not seize the separation roller.

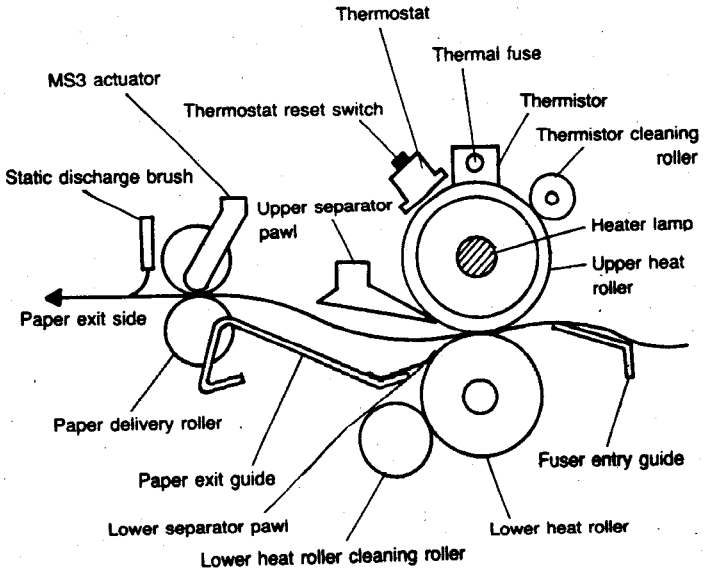
B. Separation roller

① Remove the separation unit from the copier.
② Remove the remover tape.
③ Remove the gear 36T and 28T. Push the shaft inside to unlock.
④ Remove the separation roller stopper.
⑤ Lift the auxiliary separation roller and remove the separation roller.



[13] FUSER UNIT

1. General description



A. Heat rollers and cleaning roller.

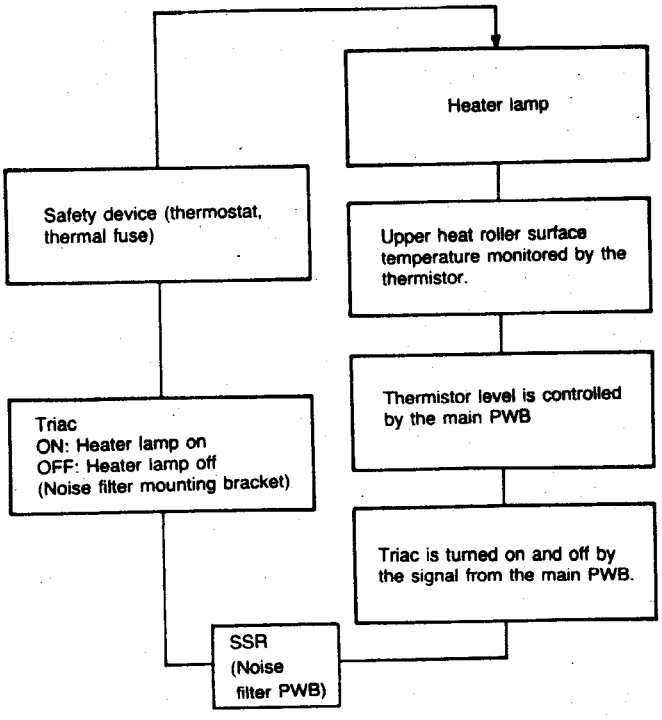
A teflon roller is used for the upper heat roller and a silicon roller is used for the lower heat roller.
The lower cleaning roller is impregnated with silicon oil to increase the cleaning efficiency, as well as prolonging the life of the rollers.

B. Separator pawls.

Four separator pawls are used for the upper heat roller and three for the lower heat roller. The upper separator pawls are coated with Teflon to reduce friction with the roller.

C. Temperature control.

① Temperature of the fuser unit is controlled by means of a heater lamp in conjunction with the thermistor, main PWB logic, and noise filter PWB logic (SSR), and the triac.
A thermostat and a thermal fuse are used to prevent harm to the machine in case of an irregularly high temperature.


Heater lamp
Safety device (thermostat, thermal fuse)
Upper heat roller surface temperature monitored by the thermistor.
Thermistor level is controlled by the main PWB
Triac
ON: Heater lamp on
OFF: Heater lamp off
(Noise filter mounting bracket)
Triac is turned on and off by the signal from the main PWB.
SSR
(Noise filter PWB)

② The upper heat roller surface temperature is set to 180 degrees C.
③ The machines self diagnostics will display a status code when a fuser malfunction occurs.
a. When the heat roller surface temperature rose above 240 degrees C. H3 displayed.
b. When the heat roller surface temperature dropped below 140 degrees C (H2 is displayed) or did not rise to 180 degrees C within 90 seconds. (H4 is displayed).
c. Open thermistor(*1) H2 is displayed.
d. Open thermal fuse(150°C)(*1)
e. Open thermostat (170°C) contacts(*2)

NOTE (*1) : To replace component parts for c. or d. above, remove the allen nut beside the parts without loosening the relay harness.
NOTE (*2) : If the thermostat contacts are open, push the reset button on the top of the thermostat to manually reset. It does not restore automatically.

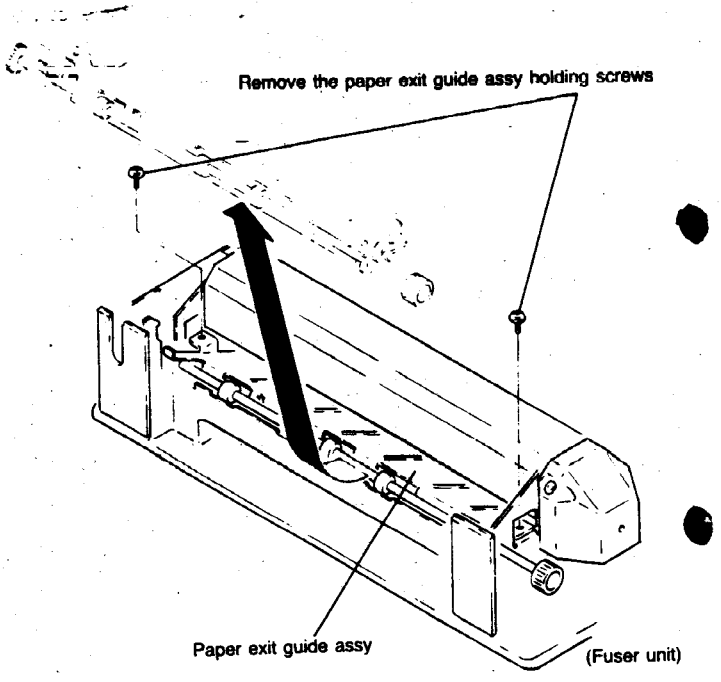
D. Major parts replacement period

① Upper and lower heat rollers: Every 80,000 copies
② Lower heat roller cleaning roller: Every 40,000 copies
③ Thermistor cleaning roller: Every 40,000 copies
④ Upper sparator pawls: Every 80,000 copies (position to be shifted at every 40,000 counts)
⑤ Lower separator pawls: Every 80,000 copies.

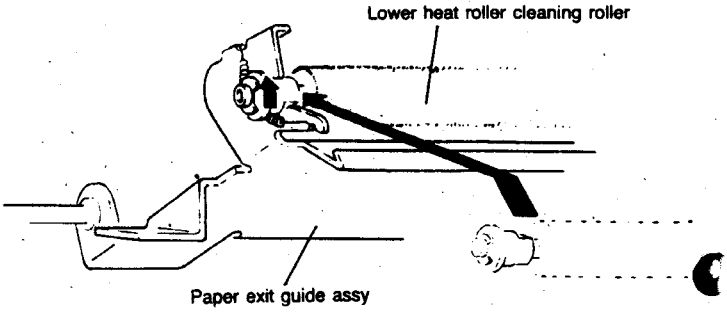
2. Major parts replacement

A. Lower heat roller cleaning roller

① Remove the paper exit guide assy.

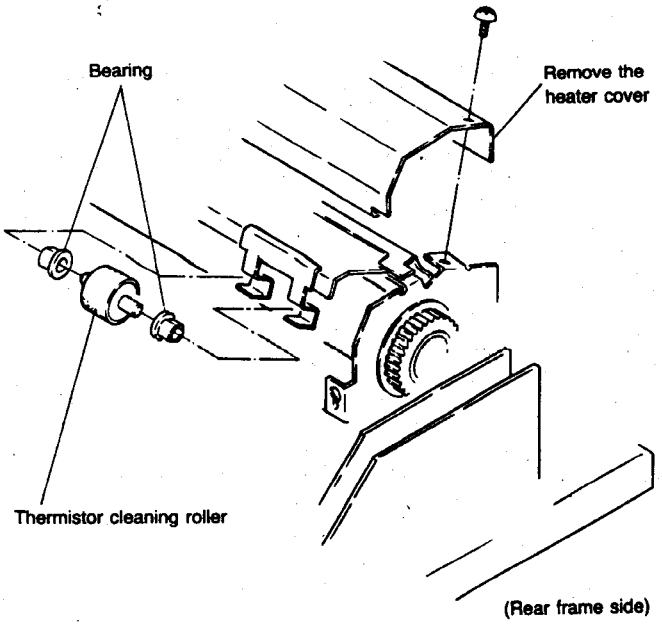


② Remove the lower heat roller cleaning roller from the paper exit guide.



B. Thermistor cleaning roller

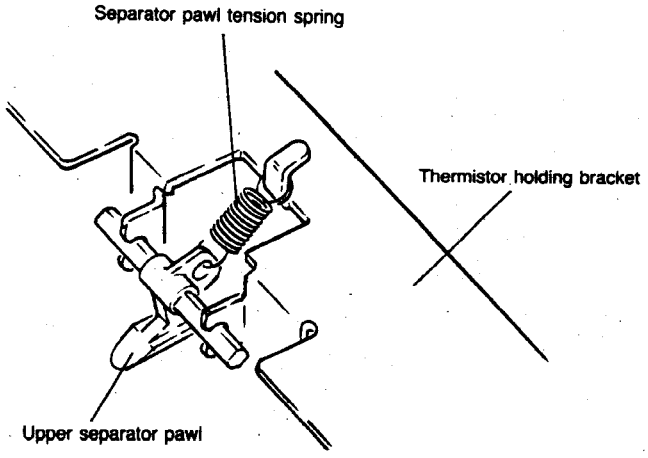
① Remove the heater cover.
② Remove the thermistor cleaning roller.



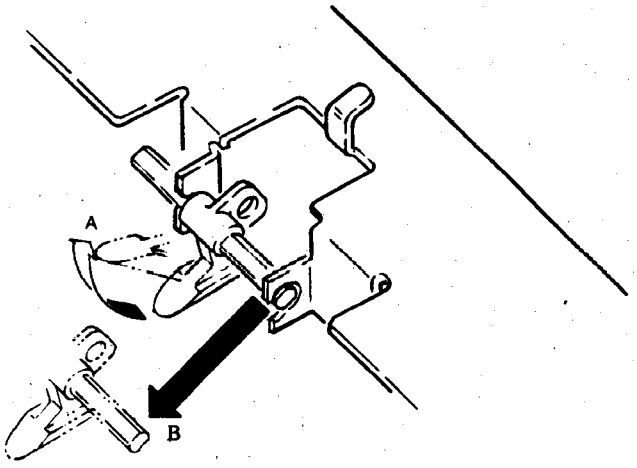
C. Separator pawl

[Upper separator pawl]

① Remove the fuser cover.
② Remove the separator pawl tension spring.

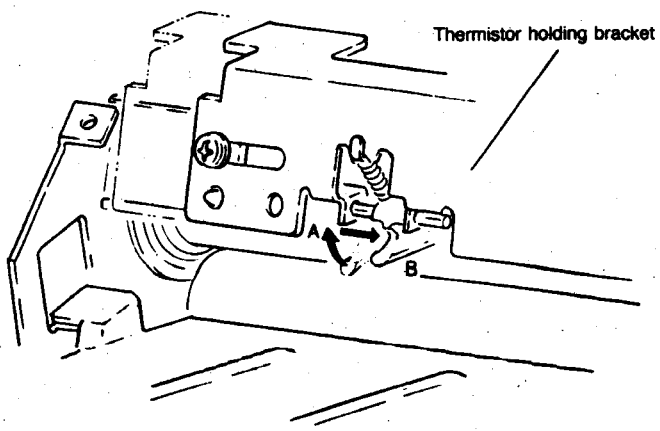


③ Rotate the separator pawl in the direction of arrow A and remove it in the direction of arrow B.



(Releasing the upper separator pawl)

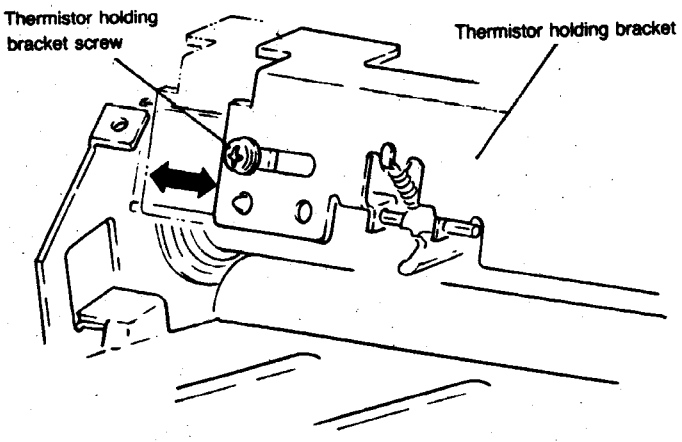
Rotate the separator pawl in direction A and slide it in direction B and lift it away from the heat roller.



(Shifting separator position)

To reduce wear on the heat roller by the separator pawl, the position of the separator pawl needs to be changed every 40,000 copies.

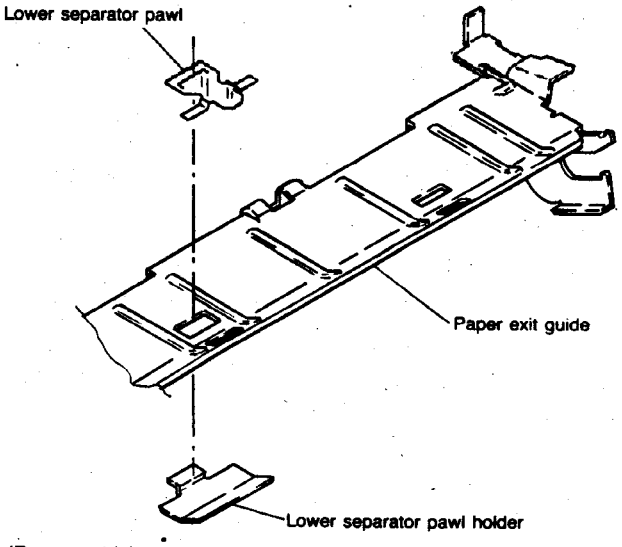
① Loosen the thermistor holding bracket screw and slide the thermistor holding bracket toward the front or rear frame side.



[Lower separator pawl]

(Removal)

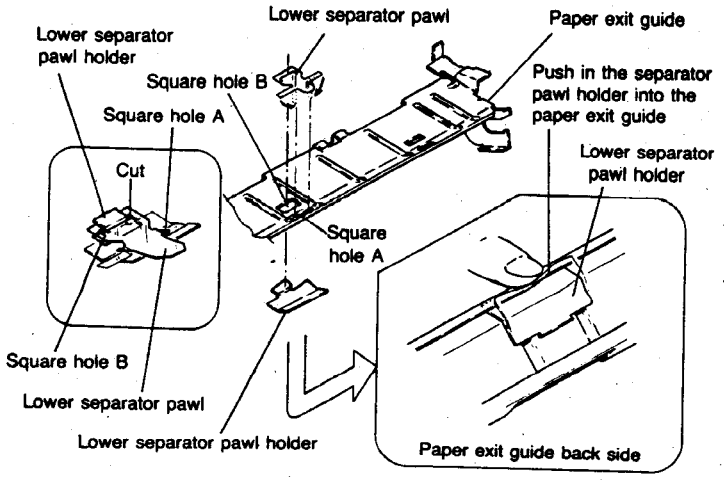
① Remove the paper exit guide assy.
② Remove the cleaning roller from the paper exit guide assy.
③ Remove the the lower separator pawl holder on the back of the paper exit guide, and remove the lower separator pawl.



(Reassembly)

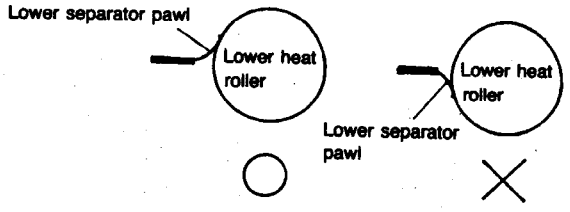
① Insert both tabs of the lower separator pawls into the square hole in the paper exit guide.
② Insert the separator pawl holder from the back of the paper exit guide into the square hole of the separator pawl holder and insert in the cut in the separator pawl.

③ Insert the other end of the separator pawl holder in the bend of the paper exit guide. Push the separator pawl with your fingertip to ensure that it has been completely engaged.



(Hints and tips)

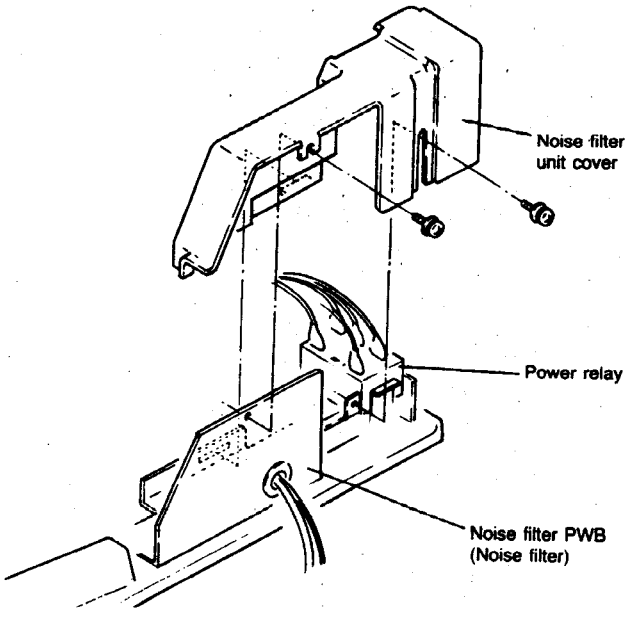
1. Do not deform the top of the lower separator pawl.
2. Excert care when installing the paper exit guide assy in the copier that the top part of the pawl may not damage the lower heat roller.
3. Make sure in installing the paper exit guide assy in the copier that the top part of the separator pawl is in contact with the lower heat roller as shown in the figure.



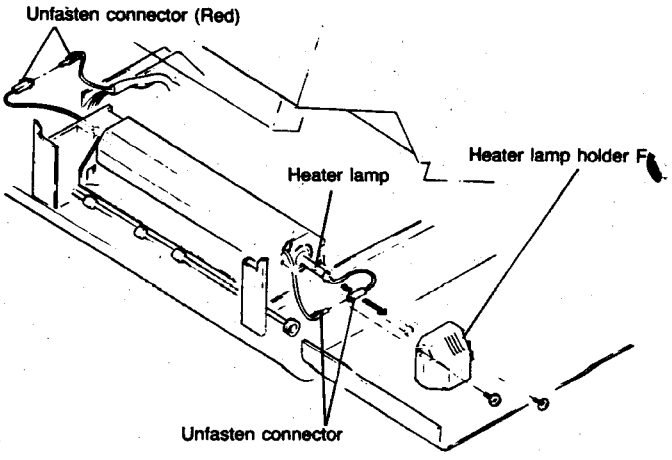
4. Make sure that the separator pawl holder extends out of the cut in the separator pawl to hold the separator from above.

D. Heater lamp

① Remove the rear frame side Noise filter unit cover.

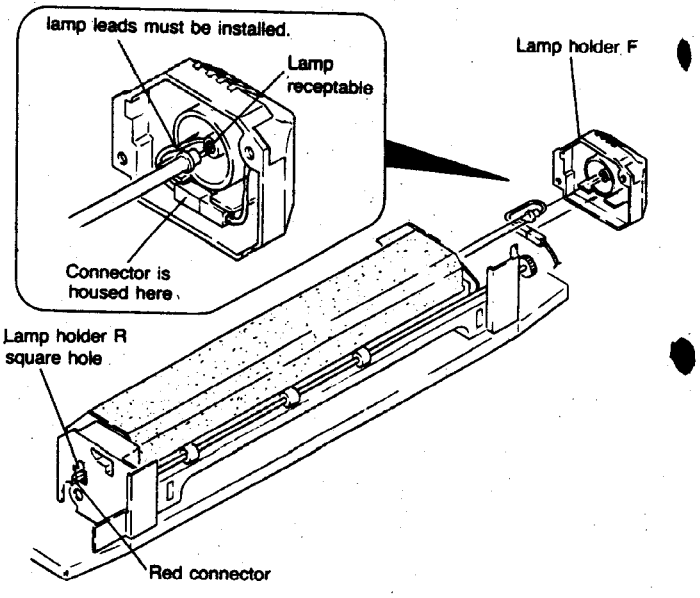


② Remove the front frame side heater lamp holder and unfasten the connector.
③ Unfasten the rear frame side red heater lamp connector.
④ Take the heat lamp out from the front frame side.

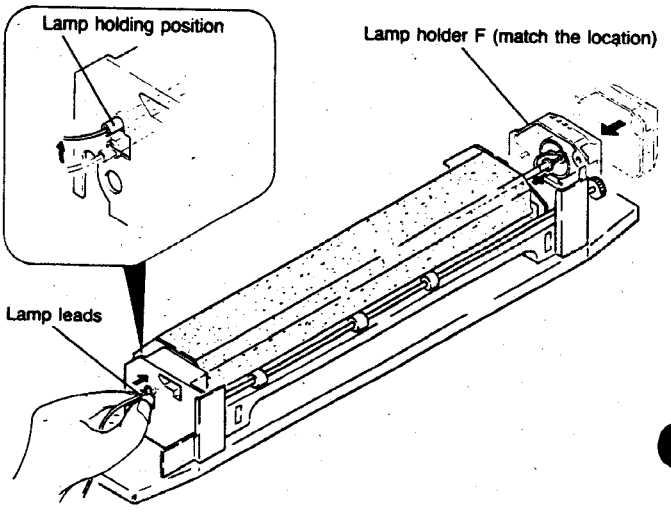


Installation procedure

① After reassembly of components, install the lamp holder R.
② Insert the heater lamp from the front frame side and route the red connector through the square hoel of the lamp holder R.
③ Fasten the connector of the lamp holder F side. House the connector inside the holder, and latch the lamp in the receptacle of the holder F.



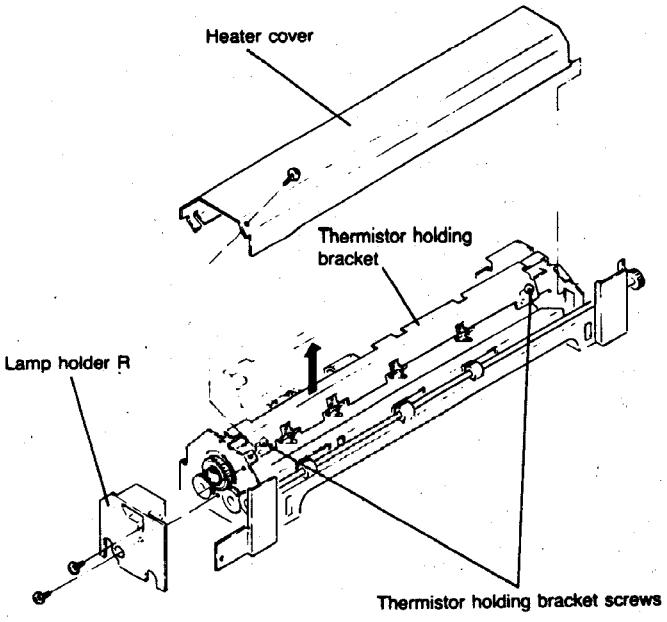
④ Hold the rear frame side lamp leads and press it towards the front frame side and match the lamp holder F to its installation location.
The rear frame side of the lamp must be moved to the lamp holding position of the lamp holder R and install.

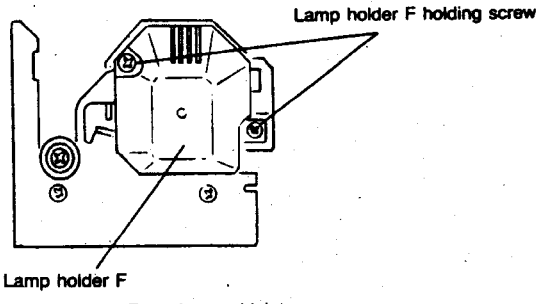


⑤ Install the lamp holder F.
⑥ Fasten the lamp holder R side connector.

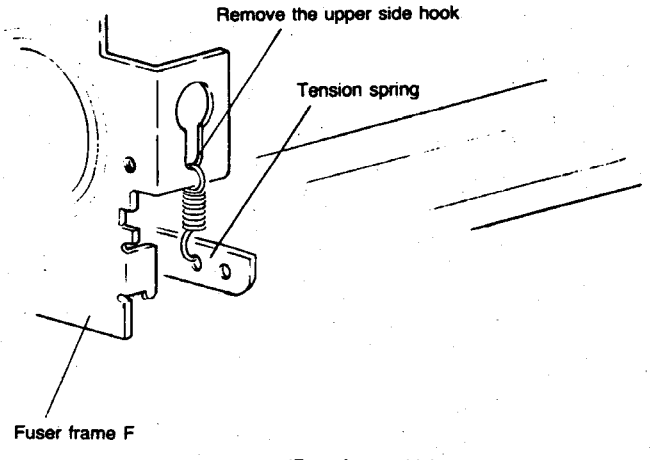
E. Heat roller

① Remove the fuser unit. (See 2-F.)
② Remove the heater lamp. (See 2-C.)
③ Remove the heater cover, lamp holder, and thermistor holding bracket.

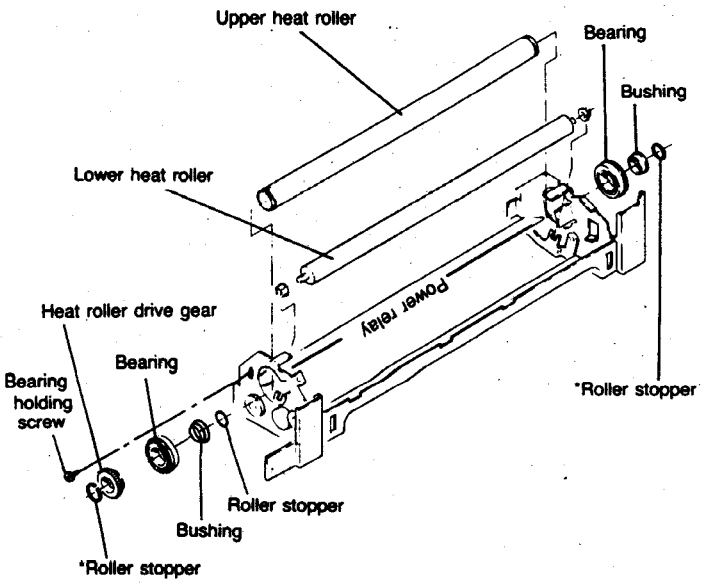




④ Remove the upper side hook of the tension spring and release the heat roller tension with a long nose pliers.

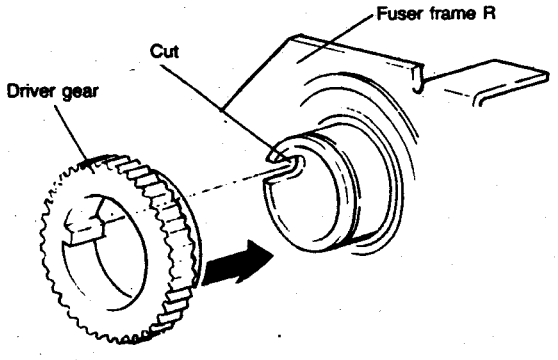


⑤ Remove the roller stoppers, gear, bearing holding screw, bearings and bushings, then remove the upper heat roller.
⑥ Remove the paper exit guide assy, then remove the lower heat roller.



* Use C-ring pliers to remove the roller stopper.

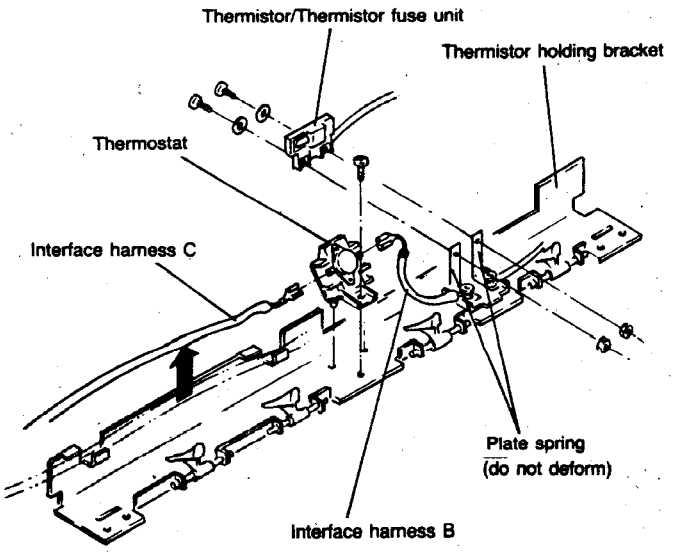
NOTE: The cut in the upper heat roller must be on the rear frame drive gear side.



F. Thermostat and thermistor (thermal fuse)

① Remove the AC power supply unit cover.
② Remove the heater cover and the front frame side lamp holder.
③ Unfasten the rear frame side white 1-pin connector, 3-pin connector connected to the AC PWB, and the front frame side copy lamp connector.
④ Remove the thermistor holding bracket screws and remove the thermistor holding bracket. (It is necessary to separate the separator pawls from the heat roller surface before beginning this job).
⑤ Remove the screws and interface wiring harnesses, then remove the thermostat.
⑥ Remove the screws on the thermistor/thermal fuse unit, and remove the unit from the plate springs.

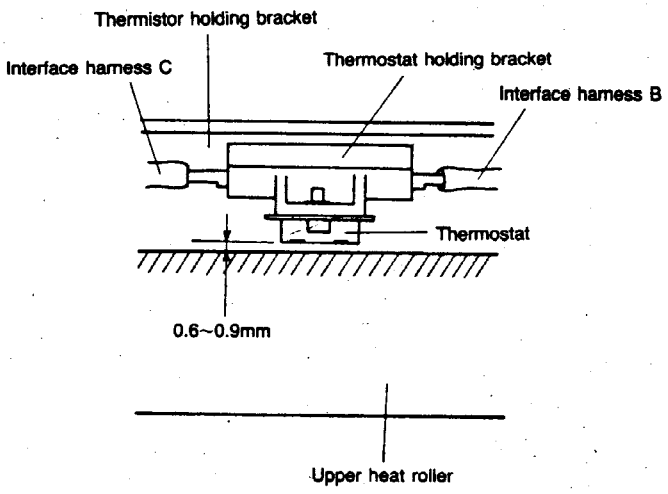
NOTE: Do not deform these plate springs when removing the thermistor/thermal fuse unit.



(Check-out)

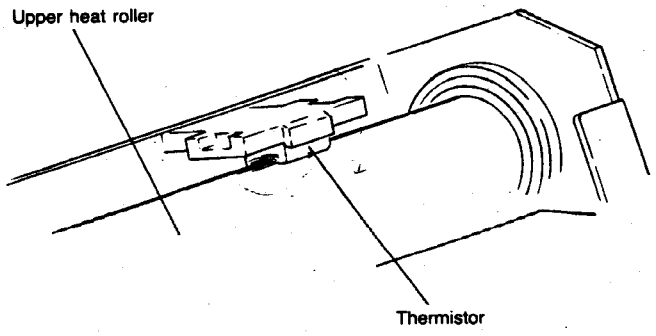
● Thermostat

Ensure that the gap between the thermostat and the upper heat roller is 0.6 to 0.9mm.



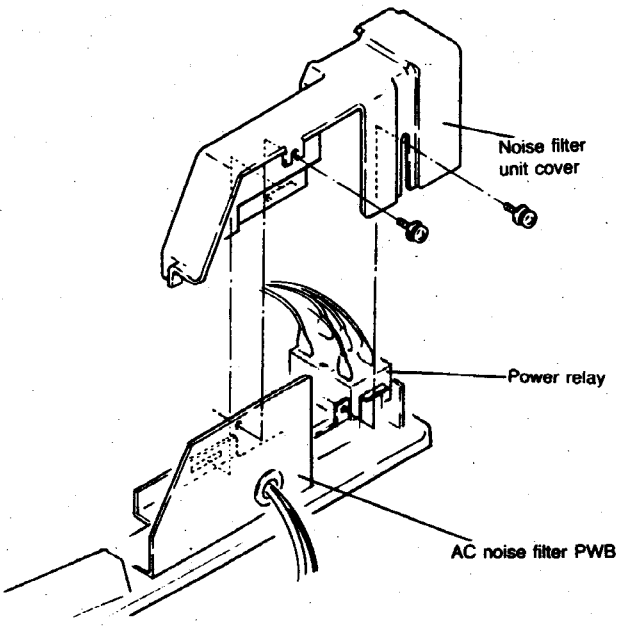
● Thermistor

Ensure that the center of the thermistor is in close contact with the heat roller surface.



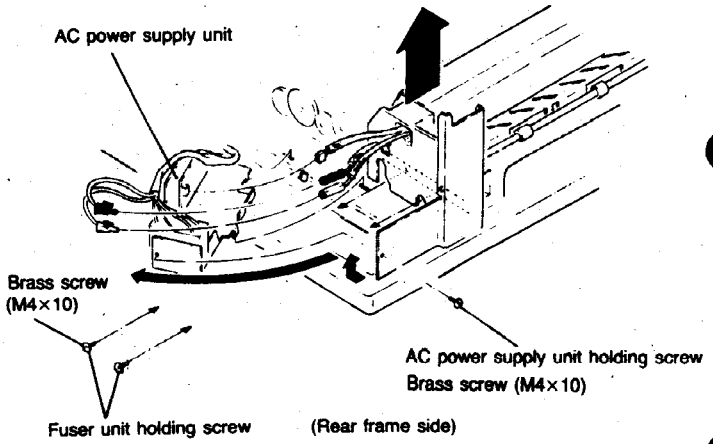
G. Fuser unit

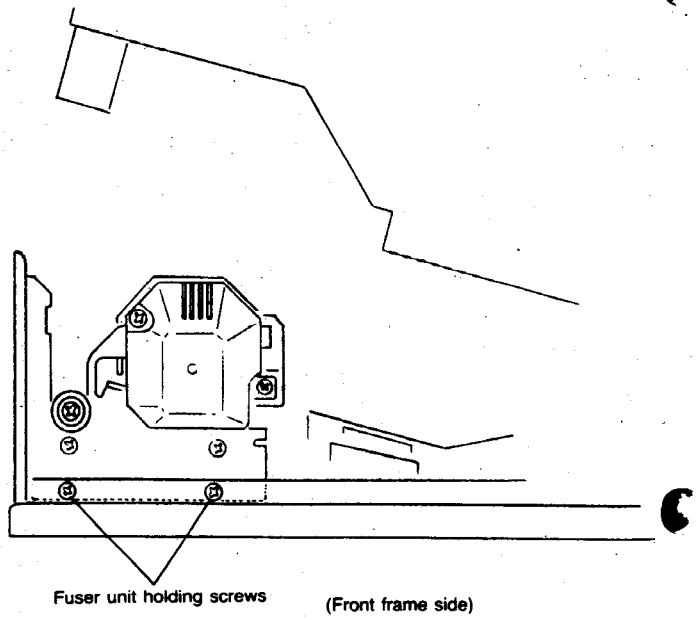
① Remove the rear frame side Noise filter unit cover.



② Remove the noise filter unit screws and unfasten the connector and move the power supply unit to the location shown in the figure.

③ Remove the fuser unit holding screws and lift it up to remove.

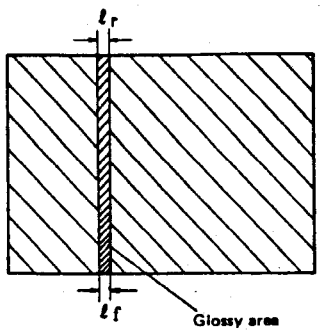




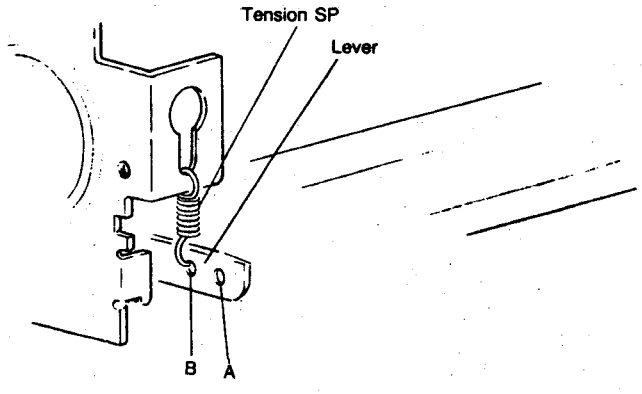
3. Heat roller pressure balance adjustment

This adjustment is required for any of the following reasons:
- When the copy paper is creased within the fuser unit.
- When a fusing problem occurs.
- After replacement of the fuser roller tension spring.

① Make an all toned copy on an A3 (11"×17") paper. Stop the machine when the copy paper is still in the fusing unit.
② Immediately, take out the copy.
③ Measure the width of the glossy area on the copy paper where the fusing roller was (on both the rear frame and front frame sides).

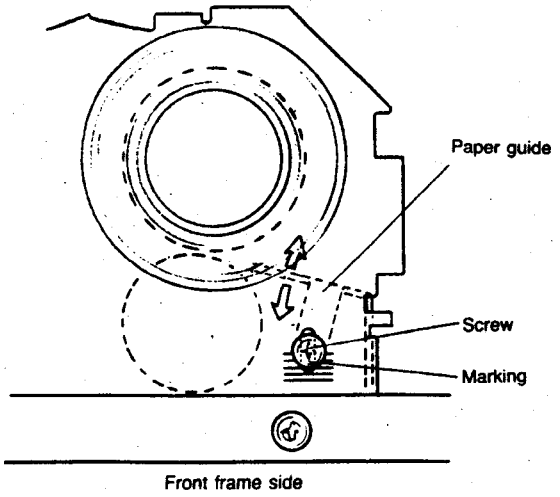


④ If the width of the glossy area were to differ on either side of the paper, make an adjustment with the tension adjusting bolt so that it is the same on both sides.
- Changing the spring hook position changes the tension of the roller. Normally, spring hook "B" is used, but, the hook position may be changed if the tension differs between the front and rear frame sides.
  Roller tension increases when the hook position is in "A".
  Roller tension decreases when the hook position is in "B".

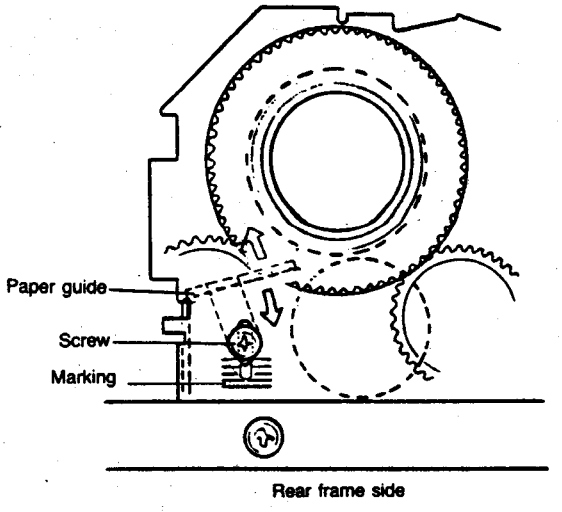


4. Installation of the fuser front paper guide

(Front frame side)
The lower side of the screw (front frame side) must be just over the third line marked on the fuser frame.



(Rear frame side)
The lower side of the screw (rear frame side) must be just over the fifth line marked on the fuser frame.



The screw may be located to any line, if creasing, misfeed, or transfer failure were occuring.

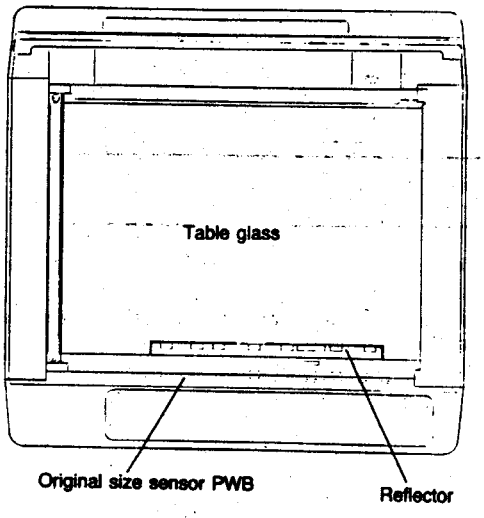
[14] OTHERS

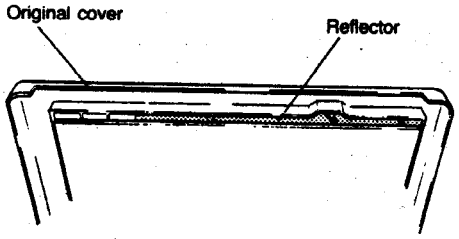
1. Original size sensor adjustment (SF-7750 only)

Original size sensor adjustment is required for any of the following reasons:

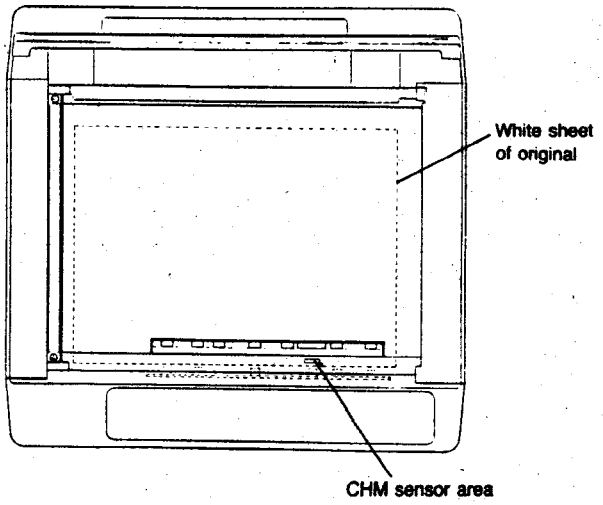
- After replacement of the original size sensor PWB.
- After installing the SADF (SF-466).
- After replacement of the original size sensor reflector.
- After replacement of the main PWB.
- After replacement of an IC (RAM, IC3) within the main PWB.
- When the trouble status U2 is displayed.
- After replacement of components within the original size sensor PWB.

① Clean the light emitting element, light receiving element, and the reflector.





② Execute test command 60.
③ Without an original on the original table, completely close the original cover.
④ Push the PRINT switch to store the sensor output level when no original is present. The ready indicator will then turn on.
⑤ Place a sheet of white paper on the original table making sure that the front edge of the paper completely covers the CHM sensor area, and close the original cover.



⑥ Push the PRINT switch to store the sensor output level when an original is on the original table. The ready indicator will then go out.
⑦ The mean value of step ④ and step ⑥ is stored in the memory as the sense level.
⑧ Cancel test command 60, by pushing the clear key.
If the original size lamp should be flickering without the READY lamp turned off. It indicates there is an error in the original size sensor. (Output level of the sensor that's flickering.) In this event, the sensor has to be checked.

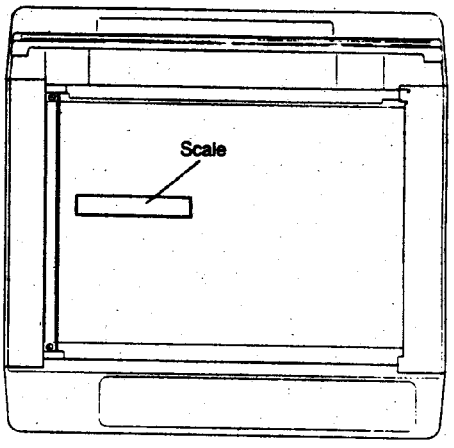
2. Copy magnification ratio adjustment (SF-7750 only) (transversal direction)

Transversal magnification ratio (paper exit direction) can be adjusted by adjusting the mirror base scanning speed.
Copy magnification ratio (horizontal). Adjustment is required for any of the following reasons:

- After replacement of the main PWB.
- After replacement of an IC (RAM IC3) within the main PWB.
- When the trouble status "U2" is displayed.
- After replacement of the mirror motor.
- After replacement of the mirror motor control PWB.

Adjustment:

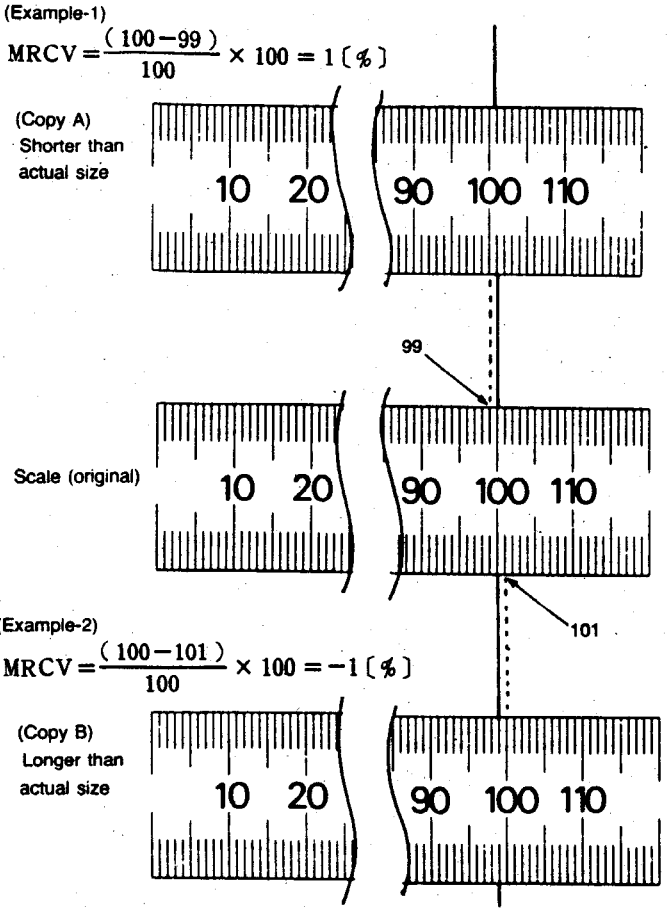
① Place a scale on the original table as illustrated below. Make a copy in the normal size mode (×1.0) to obtain the copy magnification ratio compensation value. If the magnification is not 100% (1:1) the number stored in test command 49 must be changed.



$$\text{Copy magnification ratio compensation value (MRCV)} = \frac{(\text{original size} - \text{copy size})}{\text{size of original}} \times 100[\%]$$

(Example-1)

$$MRCV = \frac{(100-99)}{100} \times 100 = 1\,[\%]$$



NOTE: Calculate MRCP based on original size of 100mm.

② Enter test command 49 then the ready indicator turns on and a number will appear in the quantity display.
(This number is the current value stored in memory for transversal magnification).
Use the following formula to calculate the new value for test command 49.
New value = (Currently stored value) + (MRCV × 10)
Enter this new value and press the print switch verify the magnification by repeating step ①.

(Example)
If the previously set figure is 50, entry for Example-1 and Example-2 at ① will be as follows:
- Example-1: 60 = 50 + (1 × 10)
- Example-2: 40 = 50 + (−1 × 10)

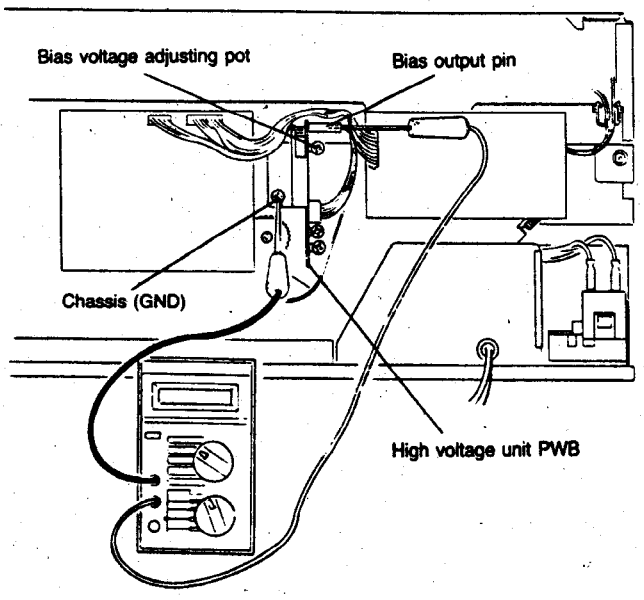
When the PRINT switch is depressed after entering the number, it is stored in memory and the ready indicator turns off.

③ Cancel test command 49, by pressing the clear key.

3. Developing bias voltage adjustment

Developing bias voltage adjustment is required for any of the following reasons:
- After replacement of the high voltage unit.

① Set the digital voltmeter to 300VDC range or above.
② Connect the probes between the bias output pin of the high voltage PWB and chassis (GND).

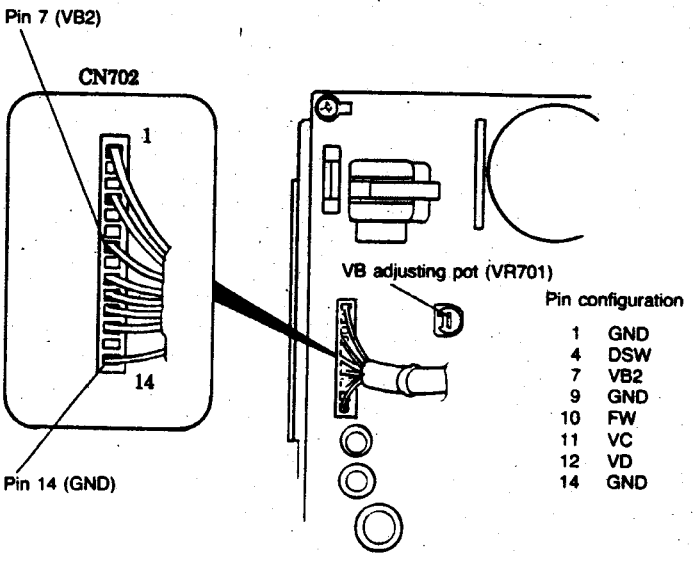


③ Enter test command 8. The bias voltage is supplied for about 30 seconds. Adjust the voltage to −230V with the bias voltage adjusting pot.

4. DC power supply output voltage (VB, +24V) adjustment

Adjustment is required for any of the following reasons:
- After replacement of a part within the DC power supply unit.
- After manipulation of the adjusting pot.

① Connect digital voltmeter probes between pin 7 (VB2) and pin 14 (GND) of the connector CN702.
② Turn power on with the front door open.
③ Adjust the pot (VR701) so that 24.5 ±0.2V should be obtained. Clockwise turn of the pot increases voltage and counterclockwise turn decreases voltage.

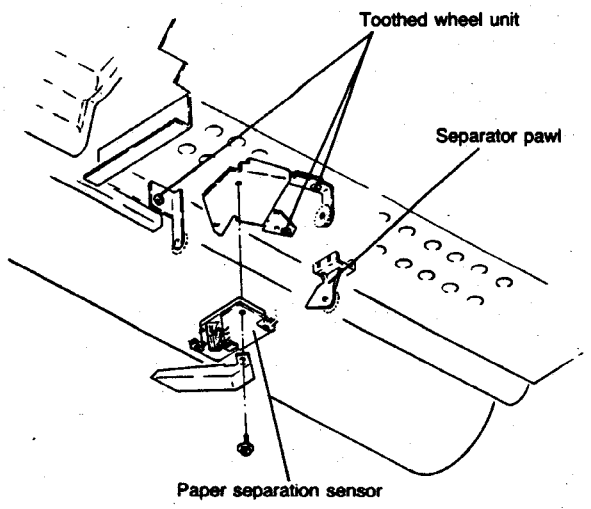


5. Major parts replacement for the cleaner section

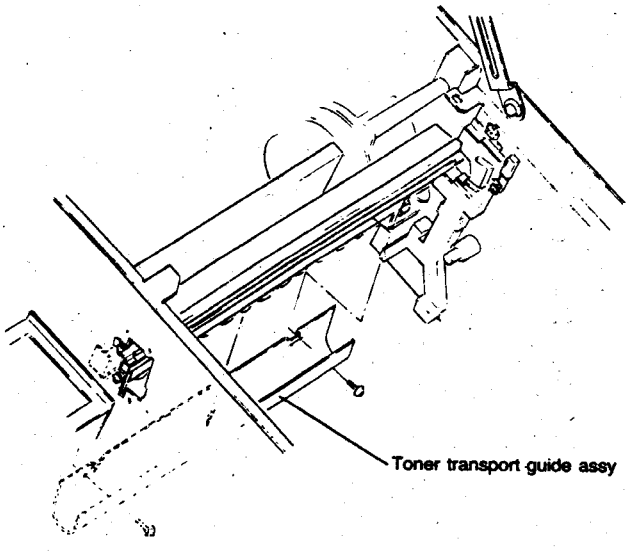
NOTE: Spread a sheet of paper under the cleaner section to prevent toner from dropping into the machine.

A. Toner transport guide assy (toner receive sheet)

① Remove the drum and the cleaning blade.
② Remove the separator pawl, paper separation sensor, and the toothed wheel unit.

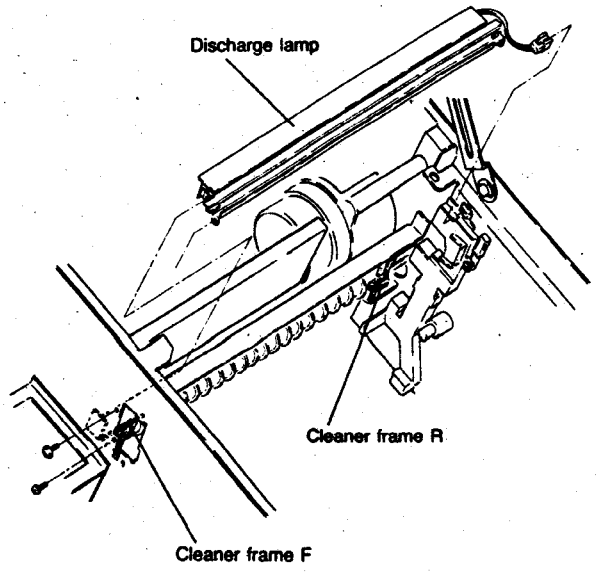


③ Remove the screws and remove the toner transport guide assy.



B. Drum seal and cleaning seal

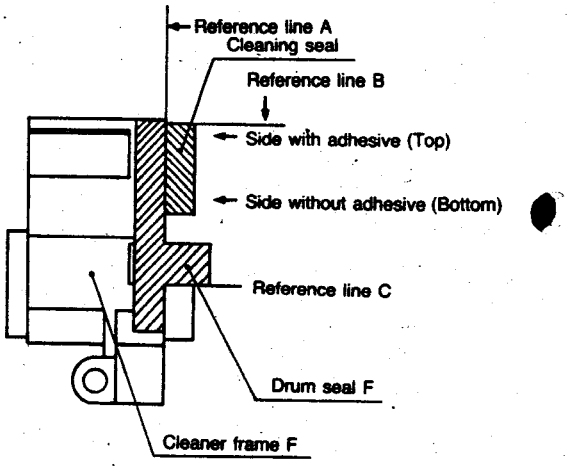
① Remove the drum and the cleaning blade.
② Remove the toner transport guide assy.
③ Remove the discharge lamp.



④ Replace the drum seal and the cleaning seal. (reference the figure below for their locations).

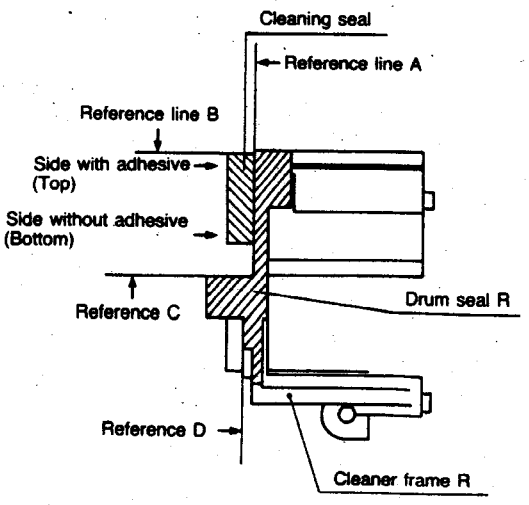
(Front frame side)

a. Cleaner seal
Bond the cleaner seal in reference to A and B.
b. Drum seal F
Bond the drum seal F in reference to A and C.



(Rear frame side)

a. Cleaner seal
Bond the cleaner seal in reference to A and B.
b. Drum seal R
Bond the drum seal R in reference to A and C.



6. CLC PWB adjustment

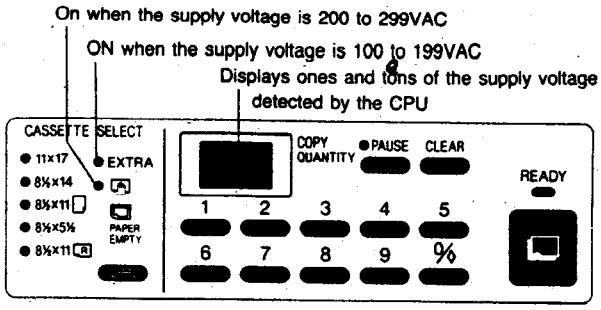
CLC PWB adjustment is required for any of the following reasons:

- After replacement of an IC (RAM IC3) within the main PWB.
- After replacement of the CLC PWB.
- After replacement of the CLC PWB component.
- After replacement of the main PWB.

(Adjustment procedure)

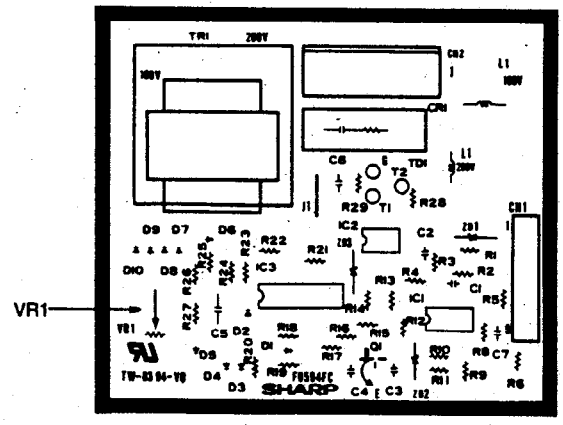
① Apply the AC voltmeter to the wall outlet to which the copier is connected.

② Execute test command 92.
C → P → 0 → P → 9 → 2 → PSW
The supply voltage is then displayed in the display window.



(Ex):
When the manual feed lamp is ON with "05" in the multicopy window, the supply voltage detected by the CPU is 105VAC.

③ Adjust by means of VR1 of the CLC PWB so that the voltage on the voltmeter should be the same as the supply voltage shown in the multicopy window. (The CPU is not directly monitoring the supply voltage, but the supply voltage is rectified to DC level within the CLC PWB to monitor it. Therefore, the voltage varies when VR1 is manipulated.)

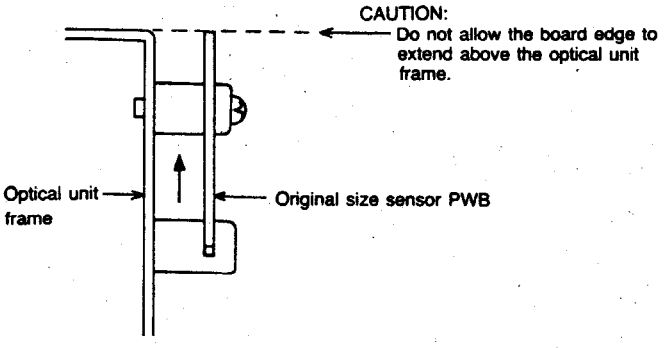


CLC PWB

④ Push the CLEAR key to cancel test command 92.

7. Installation of the original size sensor PWB

The original size detect PWB should be installed on the upper side of optical unit frame. Do not allow the board edge to extent above the optical unit frame.

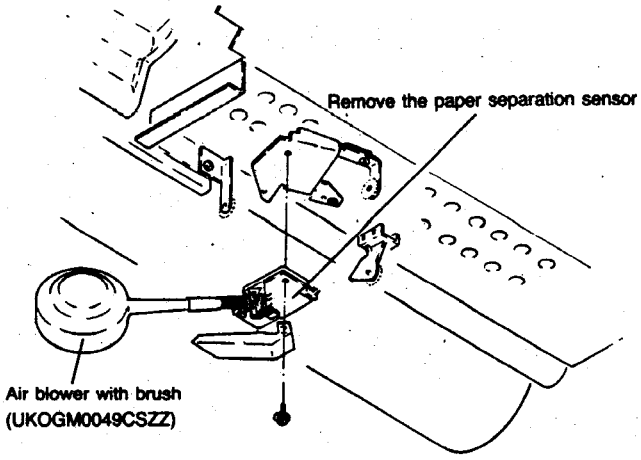


8. Cleaning the paper separation sensor

The paper separation sensor must be cleaned every 40,000 copies.

① Open the frames.

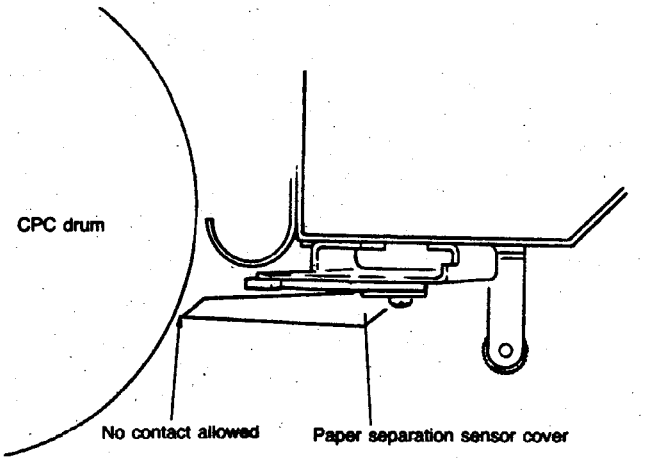
② Remove the paper separation sensor.



③ Clean the surface of the paper separation sensor LED and the phototransistor using the air blower.

④ Replace the paper separation sensor back in the unit.

NOTE: Do not allow the paper separation sensor cover to come in contact with the OPC drum.



9. Separation sensor adjustment

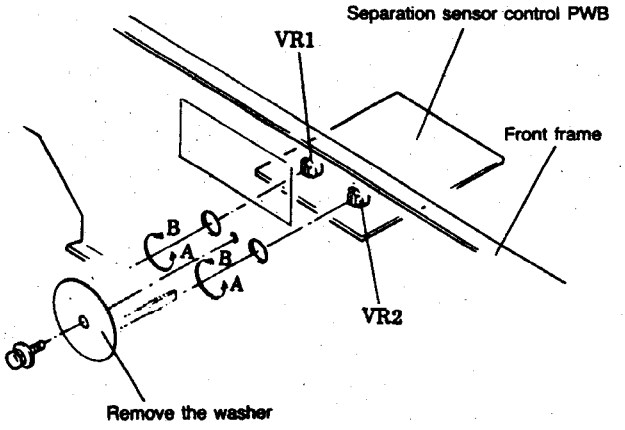
The paper separation sensor adjustment is required for any of the following reasons:

- After replacement of the paper separation sensor or its component.
- After replacement of the paper separation sensor control PWB or its component.

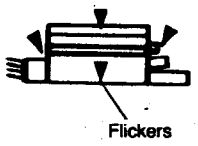
① Clean the surface of the separation sensor LED and the phototransistor with the air blower.

② Open the front panel.

③ Remove the washer located above the waste toner collect bottle.



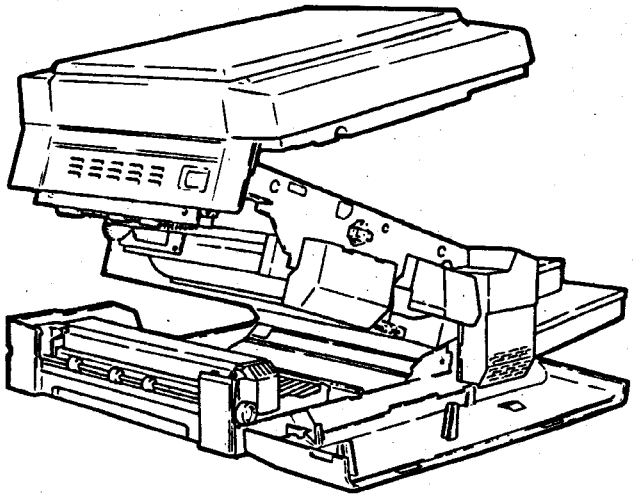
④ Insert a screwdriver through the hole (two locations) and turn the paper separation sensor control PWB potentiometers VR1 and VR2 fully counterclockwise (arrowhead A).
⑤ Turn the power on.
⑥ With the doorswitch (DSW) open (OFF), execute test command 25.
(Test command 25 procedure)
C → P → 0 → P → [2] → [5] → PSW
⑦ Manually actuate the doorswitch (PSW).
⑧ Slowly turn VR2 clockwise (arrowhead B) and stop it when the MISFEED location indicator lamp (separation unit) flickers.



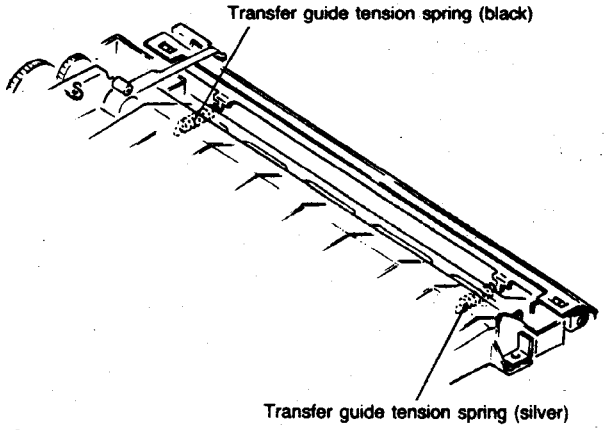
⑨ Fully rotate VR1 clockwise (arrowhead B) and make sure that the MISFEED location indicator lamp (separation unit) goes out.

10. Precautions

① Do not open the optical unit at the same time with the process unit. If it is opened at the same time, distortion is caused in the frame and it may result in image distortion (focus deviation, etc.) and irregular noise generation.



② As a different transfer guide tension spring is used between the front frame and the rear frame, the one on the front frame side is silver and the other one on the rear frame side is black. Installation of the spring in the wrong location may result in an image distortion and a transfer failure.



③ Before unfastening the connector between the optical unit and the process unit, the power must be turned off.

④ Cautions on installing the OPC drum
Do the following after installing new OPC drum or applying the starting powder over the OPC drum surface.
Press C → P → 0 → P → [2] → [5] → PSW to execute test command 25. As the drum several revolutions.
This is to prevent improper operation of the paper separation sensor (SS).

11. Paper misfeeds

Kinds of paper misfeeds

① Misfeed, MS1 does not actuate
- MS1 failed to actuate within 2.6 seconds after the activation of the upper cassette paper feed solenoid (UPFS).
- MS1 failed to actuate within 1.8 seconds after activation of the lower cassette paper feed solenoid (LPFS).

May be a failure in MS1, UPFS, LPFS, takeup roller, object in the paper path, or use of irregular paper.

② Misfeed, MS1 does not return.
- MS1 failed to deactuate within 4.3 seconds after activation of the paper stop solenoid (PSS).

May be a failure in PSS, MS1, PS roller, object in the paper path, or use of irregular paper.

③ Misfeed, MS3 does not actuate
- MS3 failed to actuate within 3.2 seconds after the activation of the paper stop solenoid (PSS).

May be a failure in PSS, PS roller, MS3, separator unit, fuser block (separator pawl), object in the paper path, or it's position.

④ Misfeed, MS3 does not return.
- MS3 failed to deactuate within 3.2 seconds after the actuation of MS3.

May be a failure in MS3, paper delivery roller, or MS3 stayed actuated by the paper trail edge as the lead edge is stopped by something.

⑤ Manual misfeed-1
- MS1 failed to actuate within 8 seconds after the actuation of MS4.

May be a failure in MS1, obstruction on the paper path (feed roller, alien object), or the paper is held up by your fingertips before the paper lead edge reaches MS1 after actuating MS4.

⑥ Manual misfeed-2
- During multicopy MS4 actuated within 900ms after the deactuation of MS1 by the trail edge of the last paper.

Manual feed is not allowed in the multicopy mode.
- During single copy
MS4 actuated within 900ms after the deactuation of MS1 by the trail edge of the paper.

⑦ Paper caught up around the drum surface
- Paper detected on the drum surface while the main motor is in rotation.

May be a failure in the remover tape, error in the paper feed (paper not caught by the remover tape), separation detect error, or failure in the paper separation sensor PWB.

⑧ At power on or when the door is closed
- MS1, MS3, or MS4 failed to actuate.

May be a failure in MS1, MS3, or MS4, paper remaining within the machine. Poor MS1, MS3, or MS4 connector seating may also cause a paper misfeed. (It acts as if a paper is in the paper path.)

[15] MAINTENANCE

(A) The SF-7700/7750 requires specific maintenance every 40,000 copies.
The following is a list of basic maintenance items.

▲ = Replace/Install
× = Inspect (Clean/Adjust/Replace as necessary)
○ = Clean
★ = Lubricate
□ = Shift position
△ = Adjustment

Item/Section	Parts description	Required Frequency					Remarks		
		Set up	40K	80K	120K	Every call	Drum unit (40K) (SF-770DR)	Heat roller kit (80K) (SF-770HR)	Cleaning roller (40K) (SF-770RL)
1. Developer Section	• Developer (Black)	▲	▲	▲	▲				
	• DV shield sheet F (PSEL-0217FCZZ)		×	×	▲	×			
	• DV shield sheet R (PSEL-0218FCZZ)		×	×	▲	×			
	• DV cover sheet (UCLEZ0075FCZZ)		×	×	▲	×			
	• Drive gears		★	★	★				
2. OPC Drum Section	• OPC drum	▲	▲	▲	▲		1		
	• Toothed wheel		○	○	○	○			
	• Cleaning blade (UCLEZ0069FCZZ)	▲	▲	▲	▲	×	1		
	• Paper separation sensor		○	○	○				
3. Fuser Section	• Upper heat roller (NROLT0549FCZZ)		○	▲	○			1	
	• Lower heat roller (NROLI0550FCZZ)		○	▲	○			1	
	• Thermistor		○	○	○	○			
	• Separator pawls								
	Upper × 4 (PTME-0168FCZZ)		□○	▲	□○	○		Upper × 4	
	Lower × 3 (PTME-0178FCZZ)		○	▲	○	○		Lower × 3	
	• Lower heat roller cleaning roller (CROLN0551FC31)	▲	▲	▲	▲	×			1
	• Thermistor cleaning roller (NR0LM0372FCZZ)	▲	▲	▲	▲	×			1
	• Drive gears		★	★	★				
4. Paper Feed Section	• Cassette take up rollers		○	○	○	○			
	• PS rollers		○	○	○	○			
	• Paper transports rollers		○	○	○				
	• Paper feed rollers		○	○	○				
	• Spring clutch		★	★	★				
	• Drive gears		★	★	★				
5. Optics Section	• Discharge lamp		○	○	○	○			
	• CL harness (DHAI-0304FCZZ)				▲				
	• Mirrors/Lens/Copy Lamp/Reflector		○	○	○	○			
	• MHP sensor		○	○	○				
	• Mirror base drive wire and pulleys		×	×	×				
	• Mirror base rail/Spring plate for Mirror base A		★	★	★				
	• AE sensor		○	○	○	○			
	• LHP sensor (SF7750 only)		○	○	○				
	• Blank lamp		○	○	○	○			
6. Corona Unit	• Main corona wires (DWIR-0466CSZZ)	○	▲	▲	▲	×			
	• Transfer corona wires (DWIR-0466CSZZ)	○	▲	▲	▲	×			
7. Separator/ Transport Section	• Separation tape (PTPE-0122FCZZ)		▲	▲	▲	×			
	• Separation roller		○	○	○	○			
	• Sub separation roller		○	○	○	○			
	• Transfer guide and wheel		○	○	○	○			
	• Transport guide		○	○	○	○			
8. Copy quality		×	△	△	△	×			
9. Others	• Ozone filter (PFILZ0114FCZZ)				▲				
	(PFILZ0109FCZZ)				▲				
	• Waste toner collect bottle (CYOK-0016FCO2)	▲	▲	▲	▲	▲			
	• Gears		★	★	★				
	• *Document glass, Document cover	○	○	○	○	○			

• After completion of machine maintenance, execute the test command 20 to reset the maintenance counter.
• After completion of developer replacement, execute the test command 42 to reset the developer counter.
* At a time of machine maintenance, dust between the glass of the document glass on the rear frame side and the mylar sheet.

[16] SELF-DIAGNOSIS AND TEST FUNCTIONS

1. Test command functions

Test functions are used to clarify and pinpoint malfunctions in accordance with the status codes and to manipulate operations in the machine by entering an appropriate test command. The status code can be checked, changed, or cancelled by the test command function. In addition, various check-out functions may be performed.

(1) Actuation of the test command functions

① Depress CLEAR, PAUSE, ZERO, and PAUSE keys in that order. All of the indicators (except copy ratio indicator, automatic exposure copy density indicator) on the operation panel will go out, and the machine will be ready to accept test commands.
If you do not complete the entering of CLEAR, PAUSE, ZERO, and PAUSE keys with in 5 seconds, the copier will not go into the test mode. You will have to perform the command entry all over again.

② Program the test command by entering the two-digit command code. Although any number of digits can be entered through the keyboard, only the last two digits are effective.

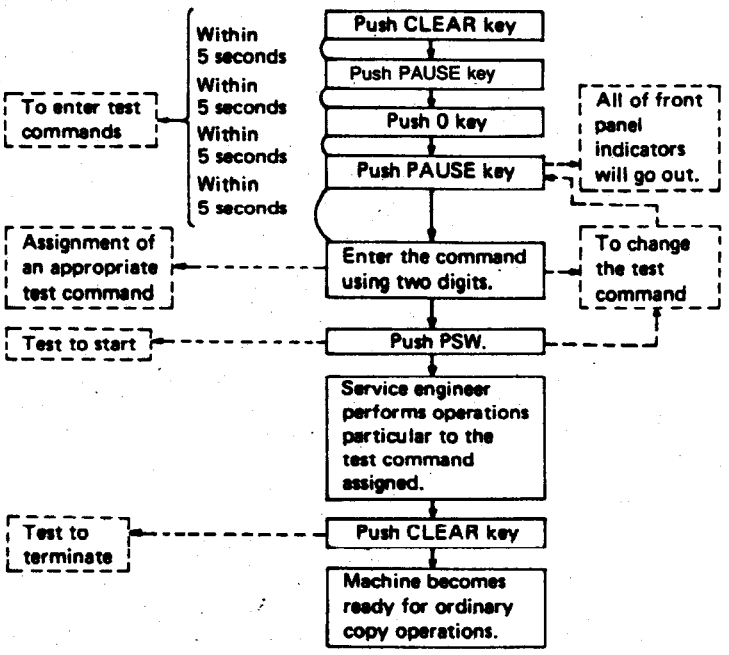
③ Depression of the PSW after the two digit entry, enables the test program as defined by the key entry.

④ To change the command, press the PAUSE key. The test program under execution is terminated and all of the front panel indicators will go out. The control returns to Step (2) and is ready for a new entry.

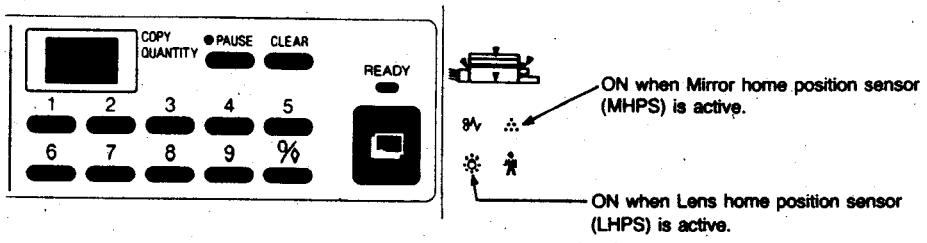
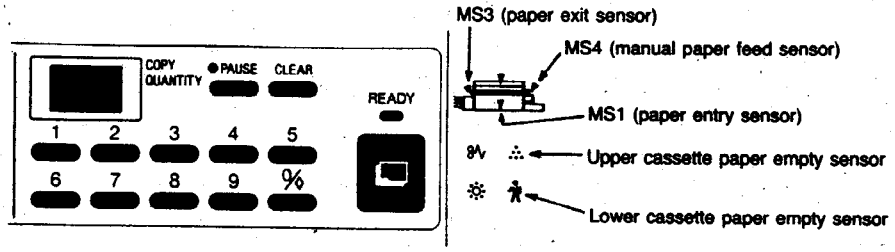
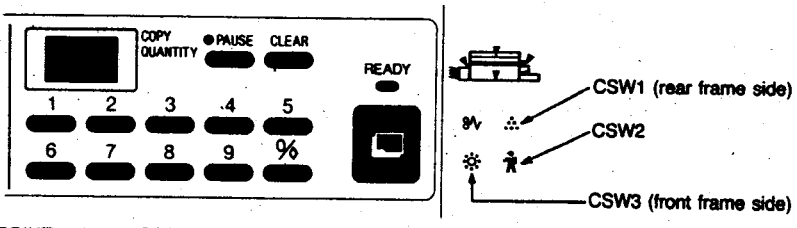
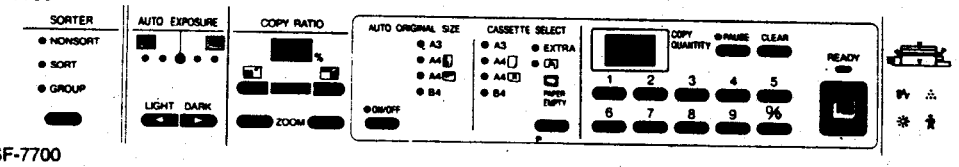
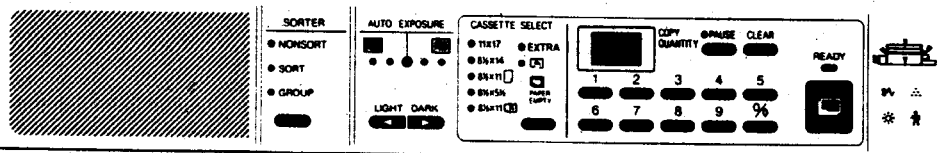
⑤ To terminate the test operation press the CLEAR key. The copier will return to the operational mode.

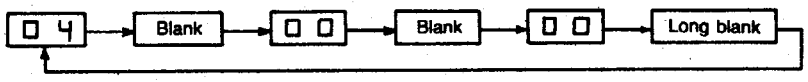
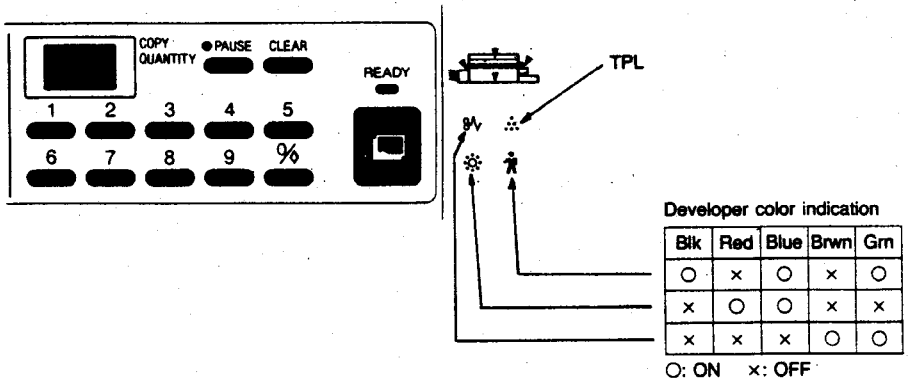
NOTE:

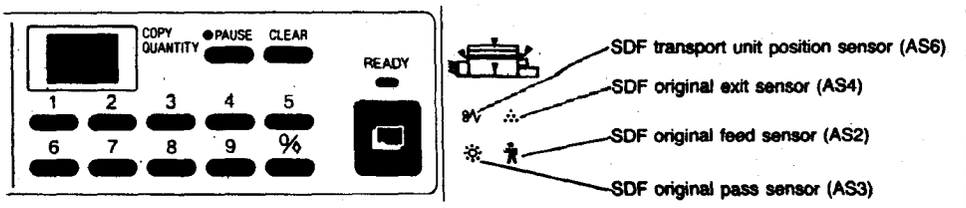
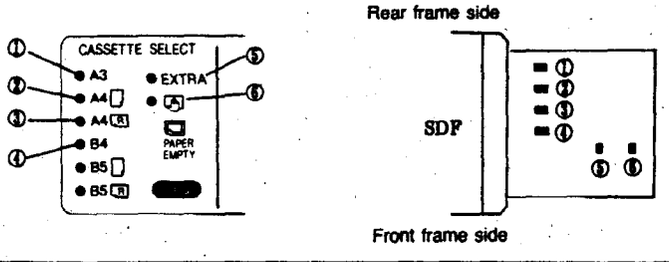
- Depression of the PAUSE key will discontinue the test operation for the test commands listed below:
  01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 12, 16, 18, 19, 20, 25, 26, 27, 30, 31, 32, 40, 41, 42, 43, 44, 46, 47, 48, 49, 50, 58, 60, 61, 70, 75, 77, 78, 79
- Any operation listed below will discontinue test programs, 21, 22, 23, or 24.
  1. Power switch off.
  2. Press CLEAR → PAUSE → 0 → PAUSE → CLEAR
- Test commands 13 and 14.
  Test command, 13 and 14, are used to clear the contents of the self-diagnosis (U1, H3, H4) memory stored in the LSI, the program will clear automatically upon the completion of the test programs 13 or 14.
  After this, the machine will go to the ordinary operational mode.
- Test command 72 is automatically canceled after the execution of the test command 72.


Push CLEAR key
Within 5 seconds
Push PAUSE key
Within 5 seconds
Push 0 key
Within 5 seconds
Push PAUSE key
Within 5 seconds
To enter test commands
All of front panel indicators will go out.
Assignment of an appropriate test command
Enter the command using two digits.
To change the test command
Test to start
Push PSW.
Service engineer performs operations particular to the test command assigned.
Test to terminate
Push CLEAR key
Machine becomes ready for ordinary copy operations.

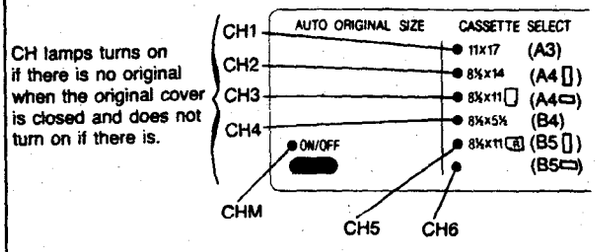
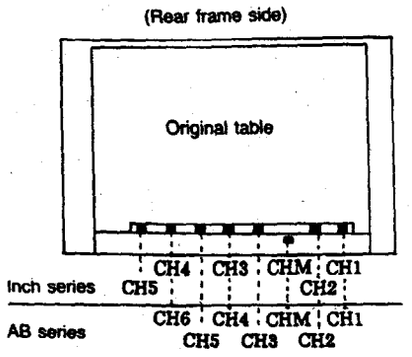
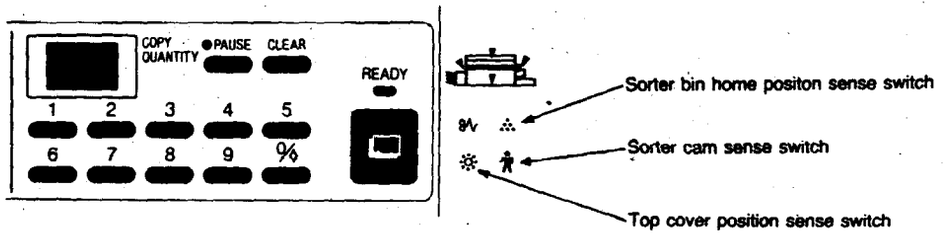
(2) Types of test commands and their functions

Test command	Function
01	The mirror base will perform forward and reverse movements automatically, to check the mirror base action.
02	The mirror base and the lens can be moved manually to check activation of the sensor (MHPS, LHPS) on the display. 
03	On/off action of sensor switches on the paper path (MS1, MS3, MS4), and upper cassette and lower cassette paper empty sensor switches (UPES, LPES) can be checked on the display. 
04	On/off action of the cassette size switch (CSW1 to CSW3) can be checked on the display.  When the PRINT switch is OFF, the upper cassette is selected. When the print switch is ON, the lower cassette is selected.
05	All indicators on the operation panel are turned on for a period of 5 seconds to check for a lamp failure or a related circuit. SF-7750  SF-7700 
06	The heater lamp is turned on and off five times for a period of 0.5 seconds each. (Repeated 5 times) Heater lamp turned on for 0.5 second ⟶ Heater lamp turned off for 0.5 second Used to check the heater lamp drive circuit. If the heater lamp flashes during the above cycle, the failure is in the LSI input lines, not the output lines. (Probable thermistor or LSI failure). If the lamps stay ON or OFF continuously, there may be a failure in the triac, heater lamp, or the LSI output lines.
07	The copy lamp is turned on for 6.5 seconds. (Full voltage (EX5) is applied for 0.15 seconds, then the voltage appropriate to the exposure setting is applied for 5 seconds).
08	Developing bias voltage is applied for 30 seconds. (−230DCV) The bias voltage and main PWB line signal checks may be made with this test command.
09	MHVG is turned on for 30 seconds. This test command allows performance of the current adjustment for the MHVG, main PWB signal checks, or proper functioning of the MHVG.

Test command	Function
10	THVG is turned on for 30 seconds. This test command, allows checking of the main PWB voltage or proper functioning of the THVG, and DCD adjustment.
12	Discharge lamp and blank lamp turn on for 30 seconds. (The blank lamp of the SF-7750 turns on one at a time from both sides.)
13	Used to cancel the status code U1.
14	Used to cancel the status code H3 or H4.
16	Used to check the maintenance preset counter contents. Set to 40000 with the SF-7700/7750, its contents will be displayed on the multicopy number display in three cycles to indicate a whole number, two digits at a time. 
18	Used to check the machine's total copy count. Will be displayed in the same manner as (16) above.
19	Actual copy count in the maintenance counter is displayed. Will be displayed in the same manner as (16) above.
20	Used to reset the maintenance counter to zero after the completion of machine maintenance. This test command must be executed after completion of machine maintenance.
21	1. Used to check the warm-up time. 2. Used to perform the aging test according to the entered copy number. When the test command is entered, the machine goes into the ordinary machine operating mode, and the warm-up time starts to count from 0, and increases every 1 second. The warm-up time is indicated on the multi-copy number display. When the RPL turns on, warm-up counting is stopped and the display remains as it is. Depression of the CLEAR key, entry of a copy number, and depression of the PSW begins the aging operation until the entered copy number is reached. The paper misfeed detect fuction stays active.
22	The aging test is carried out without using paper. As it is almost identical to test command 21, the aging test can be done, disabling the misfeed detect function. Check of the warm-up time is similar as test command 21.
23	Though identical to test command 21, the warm-up time is omitted and the heater trouble detect function and paper misfeed detect function is disabled. (The heater lamp does not turn on.)
24	Permits machine operational checks by omitting the warm-up time. RPL lights up immediately after the execution of the test command. It is possible to immediately proceed to check machine operations.
25	1. Used to adjust the toner sensor level. 2. Used to check operation of all rotating parts. With this test command, the main motor and the developing bias turns on for 3 minutes. If the toner sensor output level is too low, the TPL lamp lights. 3. Used to adjust the separation sensor. 
26 (SF-7750 only)	The lens moves from normal → ×0.86 → ×0.81 → ×0.70 → ×1.41 → ×1.22 → ×1.15 → normal (AB series). Lens moves from normal → ×0.95 → ×0.77 → ×0.64 → ×1.41 → ×1.29 → ×1.21 → normal (Inch series). The lens stops for 1 second at each position. Used to check lens base operations.

Test command	Function
27 (SF-7750 only)	(AB series) Normal → ×0.86 → ×0.81 → ×0.70 → ×1.41 → ×1.22 → ×1.15 Lens steps through the ratios continuously (aging) Lens stop 1 second at each point. Used to check lens base operatins. (Inch series) Normal → ×0.95 → ×0.77 → ×0.64 → ×1.41 → ×1.29 → ×1.21 Lens steps through the ratios continuously.
30	On/off action of the SF-466 SDF can be checked. (Sensors on the original path)  (SDF original size sensor) 
31	Used for operational checks of the SF-466 SADF (aging operation). Operation is permitted without using an original.
32	1. Main motor, MHVG, THVG, DL, BL and developing bias are turned on for 5 minutes. 2. If the toner sensor output level is too low, the TPL turns on. 3. Developer color indicator is displayed.
40	Displays the contents of the developer preset counter, in a similar manner as test command 16. (40000 for black and 10000 for red, blue, green and brown) Similar to test command 25 for displaying of the color of the developer unit.
41	Displays the contents of the developer counter, in a similar manner as test command 16. Similar to test command 25 for displaying the color of the developer unit.
42	Reset the contents of the developer counter, in a similar manner as test command 16. This test command must be executed upon replacement of the developer. Similar to test command 25 for displaying the color of the developer unit.
43	Used to set up the SADF original feed, path, and exit sensor levels. Method: ① Close the transport unit and place a sheet of white paper (A4 or 8½″ × 11″) on the original tray. ② When the test command is entered, the original is carried through the paper feed, transport, and exit sensors to store their levels in the memory. ③ If the levels are appropriate, the DOCUMENT FEED READY green lamp on the SADF indicator panel flickers a few times and the levels are set up. NOTE: If the original placed at ② were not fed into the machine or the REMOVE ORIGINAL lamp on the SADF indicator panel turns on, the operation has to be started from the beginning.
44	Used to set up rotating speed of the SADF document feed roller (DFM rotating speed) to synchronize with the speed of the carry belt (DTM rotating speed). Method: Close the transport unit and execute the test command. The original feed roller rotates for a few seconds and the DOCUMENT FEED READY green lamp on the SADF indicator panel flickers a few times. The rotating speed of the original feed roller is stored in the memory to synchronize with the carry belt.
46	Used to adjust the copy density and to select variable copy density parameters. For more details, refer to Paragraph [4] Copy quality adjustment.

Test command	Function
47	When test command 47 is executed, the mirror base moves and the copy lamp driving voltage can be set within a range of 55V (110V) to 80V (160V) in an increment of 5V each, and, the AE sensor output characteristics against the copy lamp voltage added during copying of a white original (copy lamp intensity) is stored in the main PWB RAM. The copy density adjustment (test command 46) is conducted on the basis of these characteristics. For more details, refer to Paragraph [4] Copy quality adjustment.
48 (SF-7750 only)	Used to adjust the magnification ratio in the longitudinal direction of the copy. By changing the lens home position in the normal mode, the magnification ratio in the longitudinal direction of the copy (across the front and rear frame sides) can be adjusted. Method: ① Place a scale across both frame sides of the original table and make a copy in the normal mode to obtain the magnification ratio compensation value. Magnification ratio compensation value = $\frac{\text{(original size − copy image size)}}{\text{(original size)}} \times 100\%$ ② Execute test command 48. As the ready lamp turns on, the previously stored figure (1 to 99) is displayed. Change this number with the magnification ratio compensation value obtained at ①. (Input figure) = (previously stored figure) + (magnification ratio compensation value [%]) × 10 When the PRINT switch is pushed after entry of a new figure, the figure is stored in the memory and the ready lamp goes out.
49 (SF-7750 only)	Used to adjust the magnification ratio in the transversal direction of the copy. By changing the mirror base moving speed, the magnification ratio in the transversal direction of the copy (paper advancing direction) can be adjusted. Method: ① Place a scale in the paper travel direction and make a copy in the normal mode to obtain the magnification ratio compensation value . Magnification ratio compensation value = $\frac{\text{(original size − copy image size)}}{\text{(original size)}} \times 100\%$ ② Execute test command 49. As the ready lamp turns on, the previously stored figure (1 to 99) is displayed. Change this number with the magnification ratio compensation value obtained at ①. (Input figure) = (previously stored figure) + (magnification ratio compensation value [%]) × 10 When the PRINT switch is pushed after entry of a new figure, the figure is stored in the memory and the ready lamp goes out.
50 (SF-7750)	Used to adjust the copy lead edge image location. Method: Key operation: C → P → 0 → P → 5 → 0 → PSW → □□ → PSW (a copy is produced) □ □: Number to be entered (PSC-a) → P → □ □ → PSW (a copy is produce) □ □: Number to be entered (PSC-b) Set both PSC-a and PSC-b to 0. Make one copy in the enlarge (×1.41) and the reduce (×0.64) mode. Measure the distance from the copy lead edge image area to the lead edge of the copy paper. L1 = Distance from the paper lead edge to the copy image lead edge in the enlarge mode (×1.41). L2 = Distance from the paper lead edge to the copy image lead edge in the reduce mode (×0.64). Obtain the value of PSC-a and PSC-b using the following formulae. PSC-a = 11.81 × (L1 − L2) PSC-b = (16.65 × L2) − (7.56 × L1) (fraction rounded)
(SF-7700)	Method: Key operation: C → P → 0 → P → 5 → 0 → PSW → □□ → PSW (a copy is produced) □ □: (number to be entered) Change the parameter to obtain the lead edge image loss area within 0 ± 0.5mm.
	NOTE: This action may not be enabled unless the copier is in the ready state. Test command 58 must be executed after execution of test command 50.
58	Used to adjust the copy lead edge void area. Void area limits: 0 to 3mm. Method: Key operation: C → P → 0 → P → 5 → 8 → PSW → □□ → PSW (normal magnification ratio of ×1.0 is established and the previously stored figure is displayed) → □ □ (number to be entered) → PSW (a copy is produced) (Number to be entered) Change the number until the lead edge void area comes within limits. A difference in the figure by "1" changes the void area by about 0.22mm.

Test command	Function
60 (SF-7750 only)	Used to adjust original size sensor level. On/off action of size sensor can be checked on the display.   Refer to Page [14]-1 for the method of the original size sensor adjustment.
61	① On/off action of the SF-413 sorter switches can be checked.  ② Used to check the action of the sorter paper transport, bin operating motor. Enter the following command: C-P-0-P-6-1-PSW [Press the relative key] Key entry 1: Sorter paper transport motor (SFM) rotates. Key entry 2: Sorter bin operating motor (STM) rotates. (Bins shift up) Key entry 3: Sorter bin operating motor (STM) rotates. (Bins shift down) Key entry 0: Clear the above action 1 to 3.
70	Used to check the SADF total document feed number. Display is similar as test command 16.
75	Used to reset the SADF total document feed number counter to "0". Display is similar as test command 16.
77 (SF-7750 only)	Used to enter lens f is distance corrective factor. Method: ① When this test command is executed, the lens focus distance corrective factor currently stored is displayed (see the table below). ② After activation of the ready lamp, enter the corrective factor appropriate to the lens number (printed on the lens) on the ten key keyboard and push the PRINT switch. The new factor is then stored in the memory and the ready lamp goes out. See the table below for relation of the lens number (printed on the lens) vs. the corrective factor.

Lens number	Corrective factor (Test command 77 preset value)	Lens number	Corrective factor (Test command 77 preset value)	Lens number	Corrective factor (Test command 77 preset value)
−4.5	1	−1.5	7	+1.5	13
−4	2	−1	8	+2	14
−3.5	3	−0.5	9	+2.5	15
−3	4	0	10	+3	16
−2.5	5	+0.5	11	+3.5	17
−2	6	+1	12	+4	18

(72) + ROM CHANGE FOR MAINTENANCE PG100.

Test command	Function

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Used to input the data (use of option unit, double counting of counter, or single counting of counter).
Method:
① When this test command is executed, the currently stored data are displayed and the ready lamp turns on. (See the table.)
② Enter the required data on the ten key keyboard after the ready lamp turns on and push the PRINT switch to store the new data. The ready lamp now goes out.

Data setting	Document feeder installation	Sorter installation	*Counter counting method	
			Total counter	Maintenance counter
00	No	No	Double count	Double count
01	Yes			
02	No	Yes		
03	Yes			
10	No	No	Single count	
11	Yes			
12	No	Yes		
13	Yes			
20	No	No	Double count	Single count
21	Yes			
22	No	Yes		
23	Yes			
30	No	No	Single count	
31	Yes			
32	No	Yes		
33	Yes			

*When the double count mode is selected, a single 11"×17" (or A3) copy will be counted as two copies by the counter.

NOTE: The system will not function properly if the correct setting are not made.

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Used to assign the model and local version.
Method:
① When this test command is executed, the currently stored model name and the local version are displayed. (See the table.) The ready lamp turns on.
② Enter the parameters appropriate to the model name and local version and push the PRINT switch to store parameters in the memory. The ready lamp goes out.

Model		Parameter (Local mode number)	Local standards	Description	Remark
SF-7750	AB series	10	100V series(Japan)	• Choice of Japan or export AB series • Supply voltage specification is set	Although the sizes, B5 and B5R, are displayed in Japan, they are not used in other countries.
		11	100V series (export)		
		15	200V series		
	Inch series	12	100V series(US)	• Choice of paper size preference • Supply voltage specification is set	For the US version, the paper size 8-1/2" × 11" is automatically selected, 1 minute after the last job was run or pause is selected, if no further operation is performed. For versions other than US, The paper size used for the last job remains displayed until manually changed.
		13	100V series (other than US)		
		17	200V series		

Model		Parameter (Local mode number)	Local standards	Description	Remark
SF-7700	AB series	00	100V series(Japan)	• Choice of Japan or export AB series • Supply voltage specification is set	Although the sizes, B5 and B5R, are displayed in Japan, they are not used in other countries.
		01	100V series		
		05	200V series		
	Inch series	02	100V series(US)	• Choice of paper size preference • Supply voltage specification is set	For the US version, the paper size 8-1/2" × 11" is automatically selected, 1 minute after the last job was run or pause is selected, if no further operation is performed. For versions other than US, The paper size used for the last job remains displayed until manually changed.
		03	100V series (other than US)		
		07	200V series		

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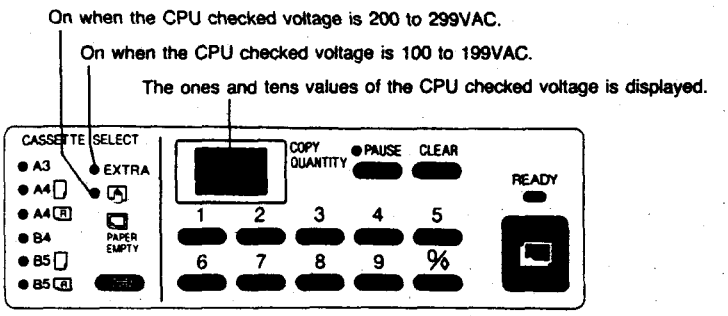
SHORT JP1 & JP2 AND THEN EXECUTE COMMANDS TO RESET MAIN BOARD.

Test command	Function
92	① Used to check the AC power supply voltage. ② Used to adjust the copy lamp control PWB. C-P-O-P-9-2-PSW With this, the AC power supply voltage checked by the CPU is displayed.  (Example) When the manual feed lamp is ON and the copy number 5 is on display, the CPU checked source voltage is at 105VAC.

NOTE: The door switch must be closed when test commands, 1, 6, 7, 8, 9, 10, 12, 22, 23, 24, 25, 26, 27, 32, 46, 47, 50, 58, 92 are executed. If the doorswitch is open, the test command will not be executed. If the warmup time is to be checked with test command 21, the doorswitch must be closed after the entry of the test command.
The developing unit must be inserted in the copier to enable test commands 21, 22, 23, 24, 25, 32.

2. Self-diagnostic functions

When the copier malfunctions, operations are suspended immediately and a status code is indicated on the multi-copy display. Status codes are represented as an alphanumeric combination of figures.

(1) Outline